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Published in conjunction with

THE SCHOOL REVIEW *and* THE ELEMENTARY SCHOOL JOURNAL

Vol. I
No. 3

July, 1917
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THE ADMINISTRATION OF SECONDARY-SCHOOL UNITS

By

LEONARD V. KOOS

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CHAPTER I

INTRODUCTORY: PURPOSE AND METHOD

The following chapters present, largely from the point of view of the educational administrator, the results of an investigation into the status of the teaching of almost all subjects appearing in the secondary-school programs of study. It constitutes a digest and interpretation of facts gathered for the use of the Committee on Reorganization of the Secondary School and the Definition of the Unit of the North Central Association of Colleges and Secondary Schools.

To make the significance of the facts and their interpretation more apparent than might otherwise be the case, it is advisable to rehearse here very briefly the history of this committee and to state the relation of its *modus operandi*, about to be described, to that of bodies and agencies that have previously had to do with the definition of units.

On motion of the North Central Association at its meeting in March, 1913, the president appointed a Committee on the Revision of the Definition of the Unit and to Investigate the Practice of Colleges in the Admittance of Students with Conditions. This committee presented at the next annual meeting of the Association, in March, 1914, an extended report[1] in two parts, that part dealing with definitions of the unit suggesting, among other things, the desirability of providing in such definitions distinctions between elementary, intermediate, and advanced work. At the conclusion of the report the chairman presented for the committee a set of resolutions,[2] from which the following excerpts are made:

> *Resolved*, That it is the sense of this body that a revision is desirable of the unit definition of secondary subjects now in use. . . . .
>
> That the unit definition should discriminate between elementary and advanced units, the former term to apply to the work of the first two years

[1] *Proceedings of the Nineteenth Annual Meeting of the North Central Association of Colleges and Secondary Schools*, 1914, pp. 101–17.

[2] *Ibid.*, pp. 117–18.

and the latter to that of the last two years of the present usual four years' secondary-school course. . . . .

Resolved, That a committee of at least seven members be appointed by the President of the Association . . . . to provide for the general revision of unit definition for secondary-school work.

That this committee shall be authorized to co-operate with the general committee in the preparation of unit definitions. . . . .

The resolutions were adopted and a Committee on the Revision of the Definition of the Unit, composed of eight members, was appointed. This committee, at the meeting of the Association in March, 1915, presented a report[1] which was, however, not in the nature of a revision of definitions, but a statement of the recognition of the relations of definition-making to the reorganization of elementary and secondary education. Upon this problem of reorganization another committee of the Association—namely, the Committee on the Reorganization of the American High School—presented a report at the same meeting. In consequence of the intimate relations of these two problems the two committees were constituted a single Committee on the Reorganization of the Secondary School and the Definition of the Unit and were instructed to make, before the next annual meeting, a report in print to the members of the Association. The method pursued in the preparation of this report will be described after there has been set down at this point a characterization of the method of definition-making heretofore used by standardizing bodies and agencies. Those standardizing bodies and agencies from whose activities illustrations of the method used will be drawn are the Committee of Ten of the National Education Association, which was the first body to attempt standardization on a very large scale, the College Entrance Examination Board, the North Central Association of Colleges and Secondary Schools, the Commission of the National Education Association on the Reorganization of Secondary Education, and a few institutions of higher learning. The institutions of higher learning that have been selected to represent the sort of definition-making attempted by these institutions as a whole are Harvard

[1] *Proceedings of the Twentieth Annual Meeting of the North Central Association of Colleges and Secondary Schools*, 1915, pp. 27–30.

University, Yale University, and the University of Illinois. As the New England College Entrance Certificate Board uses the definitions framed by the College Entrance Examination Board, and as the Association of Colleges and Secondary Schools of the Southern States uses for the most part those of the North Central Association, there will be no need of making further reference to them. The Association of Colleges and Preparatory Schools of the Middle States and Maryland has not undertaken the task of definition-making and will therefore be omitted in subsequent discussion. At a later point in this chapter brief reference will be made to the activities in this line of state authorities, such as the Regents of the State of New York and the Carnegie Foundation for the Advancement of Teaching.

The essential features of the method of definition-making as usually employed may be said to be, on the positive side, (1) the delegation of the task of framing definitions in particular subjects to committees of specialists in those subjects, and (2) dependence, sometimes almost exclusively, upon syllabi of content to be covered in the courses. On the negative side this method is characterized by (3) too little regard for the facts of practice in the schools, and (4) neglect of administrative considerations vital to the definition of the unit. As will be seen, it is not assumed that all these characteristics apply in all efforts at definition-making heretofore made; the writer contends merely that they are essentially true of each effort or that most of them apply to any one instance of definition-making.

METHODS OF DEFINITION-MAKING

1. *Definition-making by specialists.*—To show that the first feature just named is characteristic, it will, for the most part, be necessary only to refer the reader to, or make brief quotations from, publications of the bodies and agencies we have named. The original conference that resulted in the provision for, and the appointment of, the Committee of Ten presented as the first of three resolutions the following: "That it is expedient to hold a conference of school and college teachers of each principal subject which enters into the programmes of secondary schools in the

United States. . . . ."[1] Nine "conferences," or subcommittees, of ten members each were finally appointed to deal with the following subjects or groups of subjects:[2] (1) Latin, (2) Greek, (3) English, (4) other modern languages, (5) mathematics, (6) physics, astronomy, and chemistry, (7) natural history (biology, including botany, zoölogy, and physiology), (8) history, civil government, and political economy, and (9) geography (physical geography, geology, and meteorology). A glance through the lists of names in these various conferences will leave no doubt as to their being constituted of specialists in the respective fields.

The College Entrance Examination Board also has followed this practice. Under the head of history in its manual, *Document No. 68*, 1914, we find this note: "The requirements in history are based on the recommendations of the Committee of Seven of the American Historical Association";[3] under Latin: "The following requirements in Latin are in accordance with the recommendations made to the American Philological Association by the Commission on College Entrance Requirements in Latin, October, 1909";[4] under French: "The requirements in French follow the recommendations of the Committee of Twelve of the Modern Language Association of America";[5] under mathematics: "The present definition of the requirements in mathematics is in accordance with the recommendations made in September, 1903, by a committee of the American Mathematical Association,"[6] etc. The statements made in connection with all the subjects listed in this document are similar to those quoted.

That essentially the same practice of delegating the task of definition-making to bodies of specialists obtained in the North Central Association may be seen in the definitions published in its *Proceedings*[7] in 1910. On page 77 will be found the personnel

[1] *Report of the Committee of Ten on Secondary-School Studies* (American Book Co., 1894), p. 3.

[2] *Ibid.*, pp. 5, 8–11.

[3] College Entrance Examination Board, *Document No. 68*, 1914, p. 20.

[4] *Ibid.*, p. 21. [5] *Ibid.*, p. 25. [6] *Ibid.*, p. 23.

[7] *Proceedings of the Fifteenth Annual Meeting of the North Central Association of Colleges and Secondary Schools*, 1910.

of the Committee on English, constituted of eighteen members, thirteen of whom are specialists in this field, and five, administrators; on page 83 is listed the Committee on Mathematics, proportionately similarly constituted; and so on through the committees for the remaining subjects.

The Commission of the National Education Association on the Reorganization of Secondary Education is constituted of fourteen committees, twelve of which have to do with various high-school subjects.[1] Ten of these committees were organized by 1913 as follows: those dealing with English, social studies, natural sciences, ancient languages, modern languages, household arts, manual arts, music, business, and agriculture. These are made up wholly of specialists.[2]

There is little direct evidence that specialists have had to do with the framing of definitions appearing in university catalogues; that is to say, we find practically no references to committees or individuals who have prepared the statements for these catalogues. Nevertheless, we are probably justified in assuming that these statements concerning subjects for admission have in most instances been prepared by members of the faculty in whose provinces the subjects with which they deal would seem appropriately to lie, that is, the statement concerning admission requirements in Latin would be made by the department of Latin, that in mathematics by the department of mathematics, etc. The "High-School Manual"[3] issued by the University of Illinois gives evidence of a practice somewhat at variance with this, although still resorting largely to the action of committees of specialists. For instance, the description of the work in agriculture[4] begins with a very brief characterization of the course which conforms to that appearing in the catalogue of the university,[5] but contains in addition an extended "outline of the work" prepared by the Agricultural Section

[1] *U.S. Bureau of Education Bulletin*, 1913, No. 41, p. 8.

[2] *Ibid.*, pp. 16, 27–28, 29, 40, 58, 62, 66, 75, and 78.

[3] "High-School Manual, Standards and General Recommendations for Accrediting of High Schools," *University of Illinois Bulletin*, Vol. XII, No. 43 (June 28, 1915).

[4] *Ibid.*, pp. 15–17.

[5] *University of Illinois, Annual Register*, 1914–15, p. 85.

of the High-School Conference held at the University of Illinois, November 28, 1908. Such outlines or syllabi authorized in a similar manner are given in this manual for almost all the courses listed in it.

2. *Definition by syllabus.*—An examination of the statements concerning subjects prepared by the standardizing bodies and agencies to which reference has been made will convince the reader that those who have had to do with definition-making have frequently been content with the mere framing of syllabi. It is not to be denied, however, that there are exceptions. The main contention here is that the framers have too frequently seemed to be concerned with little else.

The Committee of Ten specifically directed[1] the conferences to make a report on the topics or parts of the subject that might reasonably be covered during the "whole course" or during the last four of the eighteen years of the elementary- and secondary-school period, but it requested, in addition, statements concerning places of appearance, time to be devoted to the work, relation of the work to the question of college entrance, methods of teaching, and the "best modes of testing attainments." The reports and recommendations of the conferences have usually given some attention to all the matters in this list, but an examination of the reports as a whole indicates that the problems of content and details of method in dealing with the content, especially the former, have, in general, been given most attention. For instance, 10 of the 16 pages of the report of the conference in Latin[2] are devoted to content and method; a still larger proportion of the report of the conference in Greek[3] is devoted to these topics; the reports in physics and chemistry are accompanied by extended lists of experiments to be performed;[4] courses in natural history are carefully outlined,[5] etc. Some of the reports are not so readily analyzable into extent of answer to the several queries put by the committee, but examination of them will show how prominent the questions

[1] *Report of the Committee of Ten on Secondary-School Studies* (American Book Co., 1894), p. 6.

[2] *Ibid.*, 1894, pp. 60–75.

[3] *Ibid.*, pp. 76–85.

[4] *Ibid.*, pp. 124–37.

[5] *Ibid.*, pp. 145–58.

of content and details of method were in the minds of the members of the conferences.

The College Entrance Examination Board has made almost exclusive use of the syllabus method, which lists the content and sometimes makes reference to some aspects of method. The definition in English,[1] which follows the recommendations of the National Conference on Uniform Entrance Requirements in English, besides briefly stating the aims of the work, outlines both the work to be covered in composition and the literary selections to be read and studied. The definitions in history[2] consist merely in the divisions of the field to be covered as suggested by the names of the courses listed. The definitions in French[3] and German[4] include, besides the statement of "work to be done," a statement of aim. The definitions in mathematics[5] are mere syllabi. The definition in physics[6] offers a preliminary statement as to the mode of class instruction and is then given over to lists of topics and experiments extending through six pages. Other definitions of the College Entrance Examination Board conform in organization to those here referred to.

The North Central Association, although following the syllabus method of definition, has not done so as closely as has the College Entrance Examination Board. The definitions in English,[7] as in the case of the latter institution, are those of the National Conference on Uniform Entrance Requirements in English. The definitions in mathematics[8] include, besides description of content, a statement of aims and some reference to method. The definitions in history[9] contain, in addition to the statement as to content, some reference to method, preparation of the teacher, collateral reading, and classroom equipment. The definitions of Latin[10] and Greek[11] bear exclusively on content. The definition in zoölogy[12] outlines the

[1] *Document No. 68*, 1914, pp. 13–17.
[2] *Ibid.*, p. 20.
[3] *Ibid.*, pp. 25–28.
[4] *Ibid.*, pp. 28–31.
[5] *Ibid.*, pp. 33–35.
[6] *Ibid.*, pp. 35–43.
[7] *Proceedings of the Fifteenth Annual Meeting of the North Central Association of Colleges and Secondary Schools*, 1910, pp. 78–82.
[8] *Ibid.*, pp. 84–87.
[9] *Ibid.*, pp. 89–91.
[10] *Ibid.*, p. 93.
[11] *Ibid.*, p. 94.
[12] *Ibid.*, pp. 125–32.

content of the course, gives its aims, and deals somewhat with method and equipment. The definitions here referred to typify those in other subjects and will be seen to have as their one constant constituent a statement of content.

The final results of the work of the Commission of the National Education Association on the Reorganization of Secondary Education have not yet been published, but this commission entertained the hope that the subcommittees would "formulate statements of the valid aims, efficient methods, and kinds of material whereby each subject may best serve the needs of high-school pupils."[1] If this hope is being realized, the descriptions of courses will not be limited to mere lists of topics to be covered in given courses.

The universities in general have followed the syllabus method in their descriptions of subjects of study required for admission. These have been and still are in many university catalogues very brief, but their brevity does not prevent the statement of the content of the courses, although it does seem to forbid the inclusion of other aspects of course description. This is probably due to the fact that originally the universal mode of admission was via the entrance examination and that a definite statement of content would be the best sort of clue to the line of preparation for the examination to be followed by the student. The *Harvard University Catalogue* for 1881–82 contains the following statement as to what should be included in the student's preparation in Latin, a statement essentially typical for the other prescribed subjects listed, viz., Greek, ancient history, mathematics, physics, English composition, and French or German:

> 1, 2. *Latin.* (1) Caesar, *Gallic War*, Books I–IV (or Books I–III and Sallust's *Catiline*), with questions on the subject-matter and on construction and grammatical forms. Virgil, *Aeneid* I–IV (or *Eclogues*, and *Aeneid* I–V), with questions on the subject-matter and on prosody; (2) the translation at sight of average passages of Caesar, with general questions on grammar, history, and antiquities suggested by the passages set. Translation into Latin of simple English sentences, to test the candidate's practical knowledge of grammar.[2]

[1] *U.S. Bureau of Education Bulletin*, 1913, No. 41, p. 8.

[2] *Harvard University Catalogue*, 1881–82, p. 64.

Examination of the statements contained in a recent Harvard catalogue concerning subjects in which examinations are held discovers that for English[1] they are identical with those already reported above as used by the College Entrance Examination Board and the North Central Association and as recommended by the National Conference on Uniform Entrance Requirements in English. This is accompanied by a statement of the nature of the entrance examination given in English. Almost all other statements[2] concerning subjects describe the nature of the examination to be given in them, thus expressing definitely or implying in at least a rough way what the content of the courses preparing for the examinations should be. For example, the examination in advanced Greek is reported to consist of "(*a*) The translation at sight of Homer, with questions designed to test the candidate's understanding of the passages set, and questions on ordinary forms, constructions, and idioms, and on prosody. There will also be questions on Homeric poems and Homeric life. . . . . (*b*) The translation into Attic prose of a short passage of connected English narrative. . . . ."[3] Then follows a statement of the amount of class and reading work the examination presupposes, as well as a brief description of the methods of teaching recommended. In the statements as to some of the subjects, viz., geography, botany, zoölogy, drawing, and shopwork, reference is made to "Outlines of Requirements" published by the university, to which courses in secondary schools preparing students for entrance should be equivalent.[4]

The same method of describing content is also generally characteristic in catalogues of Yale University, as may be seen by an examination of the "Detailed Statement of Subjects" in a recent issue.[5] It was true also when the only subjects listed were Latin, Greek, mathematics, and French or German,[6] and when the

[1] *Harvard University Catalogue*, 1914–15, pp. 480–83.

[2] *Ibid.*, pp. 484–501.

[3] *Ibid.*, p. 485.

[4] *Ibid.*, 1914–15, pp. 499, 500, 501.

[5] *Bulletin of Yale University, General Catalogue*, 1914–15, Eleventh Series, No. 5 (February, 1915), pp. 81–96.

[6] *Catalogue of Yale University*, 1886–87, p. 27.

description of that of which the examination in Latin would consist was as follows:

1. Latin Grammar.
2. Caesar—*Gallic War*, books i–iii.
3. Cicero—*Orations*, against Catiline and for Archias.
4. Vergil—*Bucolics*, and first six books of the *Aeneid*, including Prosody.
5. Ovid—*Metamorphoses*, translation at sight.
6. The translation, at sight, of passages from prose Latin.
7. The translation into Latin of connected passages of English prose. . . . .
8. Roman History: Creighton's *Primer of Roman History* is suggested as a basis for instruction.

The "Description of Subjects Accepted for Admission" by the University of Illinois[1] is for the most part very brief for each of the subjects, and frequently, as in the case of algebra,[2] is a list of main topics, although in some instances this method has not been used. Nevertheless, when these descriptions are reproduced in the university's "High-School Manual,"[3] they are accompanied, as has already been pointed out, by extended syllabi. An older catalogue[4] of this institution made use of a very brief variation of the syllabus method of description; it merely made reference to what was considered a standard text in a subject, as, e.g., "Physics.—The elements of physics as given in Gage's *Introduction to Physical Science*, taught with the use of apparatus for illustration and experiment."[5]

3. *Definition-making without adequate regard for the facts of practice.*—The definition-making has heretofore had too little regard for the facts of practice; that is to say, relatively few extended investigations into contemporaneous practice have been used as bases of the definitions. Of course it is not to be denied that bodies of specialists drawn from wide areas would be acquainted to a considerable extent with the facts; it is merely contended that a thoroughgoing investigation would throw more light on the status of the teaching of any given subject than would the informa-

[1] *Catalogue of the University of Illinois*, 1892–93, pp. 85–91.

[2] *Ibid.*, p. 85.

[3] *University of Illinois Bulletin*, Vol. XII, No. 43 (June 28, 1915).

[4] *Catalogue of the University of Illinois*, 1892–93, pp. 150–52.

[5] *Ibid.*, p. 152.

tion possessed by the usual body of specialists in that subject. Moreover, the facts in the possession of these specialists as a result of their experience are not always of a sort available for use in definition-making, especially when this is of the administrative sort.

The report of the Committee of Ten does not indicate that the conferences acting as subcommittees on the various subjects and subject-groups, with the exception of that dealing with history, civil government, and political economy, made investigations into the teaching of the work in their respective fields. It is probable that some such investigations were made. It is apparent from the report of this conference[1] that it had carried on, before making the report, a rather far-reaching investigation. We know from the various references in parts of its report[2] that the Committee of Seven of the American Historical Association had made extended inquiry into the practices of the teaching of history. The Committee of Twelve of the American Philological Association[3] had before it in framing definitions now no longer in use the facts of practice as to the teaching of Latin and Greek in the secondary schools of the United States. These are the only two committees which have had to do with efforts at definition-making for the College Entrance Examination Board concerning which we have direct evidence of the making of investigations. This, however, is not to deny that such investigations have been made by more committees than we have here indicated. We only point out that it was not the usual practice. There is no evidence that the committees framing the definitions for the North Central Association have had access to facts of practice brought out as a result of investigations. One of the recommendations made by the Committee on the Articulation of the High School and College (the predecessor of the Commission of the National Education Association on the Reorganization of Secondary Education), after first recommending the appointment of subcommittees of specialists,

[1] *Report of the Committee of Ten on Secondary-School Studies*, 1894, pp. 162–203.

[2] *Report of the Committee of Seven of the American Historical Association*, 1899.

[3] *Proceedings of the Thirty-first Annual Session of the American Philological Association*, 1899, Appendix, pp. xcvii ff.

was to the effect "that each committee collect from a limited number of well-organized, large, and small high schools in various parts of the United States material on its own subjects under the general headings: Survey of work now conducted, Recommendations for modification, Suggestions for experiments."[1] The preliminary statement of the subcommittees,[2] with the exception of the Committee on English, do not indicate that they were planning to carry on investigations into the status of the teaching of the subjects delegated to them. The Committee on English proposed "to make a fresh study of English in secondary schools"[3] and did so.[4] It goes without saying that the definitions appearing in university catalogues have not been made after investigations into the facts of practice.

Of course, as has already been said, one would not be warranted in coming to the sweeping conclusion that, because one finds no direct or indirect evidence that such investigations as we have in mind here have been carried on, they were, therefore, always absent. Definitions do not customarily make reference to such investigations, even when they have been undertaken and their results utilized. But, certainly, reports of committees would make reference to them, and the almost total absence of such references in the reading that the preparation for this study has necessitated warrants the conclusion that such preliminary investigations have been relatively infrequent.

4. *Definition-making that neglects administrative aspects.*—It would be but natural that definitions framed by specialists in the subjects defined and that conform in most cases to the syllabus type would neglect certain vital administrative aspects.

It was shown under 2, above, that the conferences co-operating with the Committee of Ten were asked to include in their reports, in addition to recommendations as to topics or subjects, recommendations as to places of appearance, time to be devoted to the

[1] *Proceedings of the National Education Association*, 1912, p. 668.

[2] *U.S. Bureau of Education Bulletin*, 1913, No. 41.

[3] *Ibid.*, p. 10.

[4] "Types of Organization of High-School English," *English Journal*, II (1913), 575–96.

work, relation of the work to college entrance, methods of teaching, and the "best modes of testing attainments." Some of these are seen to be in whole or in part administrative in character, and, in so far as they are, to free these conferences of the charge of having totally neglected administrative considerations.

We also saw that the syllabus method is so extensively used in the definitions of the College Entrance Examination Board that attention is given to little else: the definition in English contains only, besides the discussion of content, a brief statement of aims; the definitions in history list merely the fields to be covered; those in French and German add to the "work to be done" a statement of aims; the definitions in mathematics contain nothing in addition to syllabi; the definition in physics contains, in addition to the syllabus, a statement of the mode of class instruction. As these definitions were selected as being fairly representative, obviously we may conclude that they have had small regard for vital administrative considerations.

North Central definitions have had more regard for such considerations, but attention to them has been inconstant and scattering. The definition in English is identical with that used by the College Entrance Examination Board, as has already been said; the definitions in mathematics have been seen to include reference to aims and method, both of some administrative significance; likewise the definitions in history have been seen to give some attention to the questions of method, preparation of the teacher, collateral reading, and classroom equipment, most of these aspects being clearly of an administrative nature; definitions in Latin and Greek omit all reference to anything but content. The definition in zoölogy, although given over largely to the problem of content, does touch upon aims, method, and equipment; and so on with other definitions, which those referred to may be understood to typify.

To what aspects of definitions the subcommittees of the Commission of the National Education Association on the Reorganization of Secondary Education have turned their attention may be inferred from what has been said of the hope it entertains that these subcommittees would "formulate statements of valid aims,

efficient methods, and kinds of material whereby each subject may best serve the needs of high-school pupils." These subcommittees have thus had pointed out to them the desirability of including statements concerning at least two matters of administrative importance, but the writer cannot concede that these are adequate for purposes of definition.

Descriptions of courses to be accepted for admission credit, as these descriptions appear in university catalogues, also have been neglectful of administrative characteristics. The Harvard statement concerning English has been seen to coincide with that recommended by the National Conference on Uniform Entrance Requirements in English, and thus contains, in addition to the discussion of content, a very brief statement of aims. The statement concerning the nature of the entrance examination in Greek is followed, as has already been pointed out, by an additional statement as to the amount of class and reading work that is presupposed by the examination, as well as a brief description of the methods of teaching recommended. Both of these additional aspects may be seen to have administrative significance. The statements as to other subjects in the Harvard catalogue contain nothing of greater administrative importance than these and more commonly do not contain as much. As the descriptions of units of other universities have been found to vary in no great extent from the simple statement of content, it will not be necessary here to illustrate them to prove that they have given scant attention to administrative characteristics of the subjects.

STATE STANDARDIZING AUTHORITIES

Because of the limited area over which they are operative, little reference need here be made to efforts at definition-making by state authorities. Here may be included state adoptions of textbooks, since, if schools may use no other texts than those authorized, the content of the course is determined by the text adopted. More clearly in line with the work of definition-making are the syllabi of courses prepared by some state authorities and imposed by them more or less imperatively upon the public high schools of the commonwealth. An illustration of this manner of describing

courses may be seen in the Regents' requirements in New York as published in the "Syllabus for Secondary Schools," 1910.[1] The manner of course description is here, as is implied in the title, largely that of outlining the content, although other matters, particularly those concerning methods, come in for attention. Thus, the descriptions of courses in Mathematics[2] are nothing if not mere syllabi. After brief reference to method covering a half page the description of the course in Physics[3] names topics and describes experiments through 24 pages. The description of the course in Chemistry[4] is similarly constituted. An examination of the statements in this manual of 492 pages concerning other subjects will be found with few exceptions to conform to those already referred to.

THE CARNEGIE FOUNDATION UNIT

One other effort at defining the unit merits attention here, namely, that of the Carnegie Foundation for the Advancement of Teaching. It is as follows:[5]

> A unit represents a year's study in any subject in a secondary school, constituting approximately a quarter of a full year's work.
>
> (This statement is designed to afford a standard of measurement for the work done in secondary schools. It takes the four-year high-school course as a basis and assumes that the length of the school year is from thirty-six to forty weeks, that a period is from forty to sixty minutes in length, and that the study is pursued for four or five periods a week; but, under ordinary circumstances, a satisfactory year's work in any subject cannot be accomplished in less than one hundred and twenty sixty-minute hours, or their equivalent. Schools organized on a different basis can nevertheless estimate their work in terms of this unit.)

This definition was proposed at a conference of representatives of the National Conference Committee on Standards of Colleges and Secondary Schools with the officers of the Carnegie Foundation.

[1] *University of the State of New York Bulletin*, No. 607 (January 15, 1916).

[2] *Ibid.*, pp. 63–89.

[3] *Ibid.*, pp. 91–115.

[4] *Ibid.*, pp. 116–39.

[5] *Fourth Annual Report of the Carnegie Foundation for the Advancement of Teaching*, 1909, pp. 132–33.

Because of the danger to the education of youth of placing too great faith in a simple quantitative unit of this kind, a few brief quotations from the report of the president of the Foundation with reference to it will not be out of place. He says, "It is simply an effort to find a 'counter' for the very relation between the secondary school and the college which the tendencies of the last twenty-five years have been engaged in formulating,"[1] and again, "The function of this unit is simply to recognize a well-ordered high-school course. It does not touch essentially pedagogic problems, and it leaves full leeway in the matter of organization and arrangement."[2] When in this connection it is remembered that the Foundation was at this time in need of a definite and simple quantitative definition of the unit in its effort to standardize institutions of higher learning in part by the extent of their entrance requirements,[3] the inadequacy of such a unit for larger educational purposes is too obvious to need further exposition.

THE METHOD OF THIS INVESTIGATION

The method of attack on the problem of definition-making used by the Committee of the North Central Association on the Reorganization of the Secondary School and the Definition of the Unit—the method now to be described—departs from the former methods whose characterization has occupied the main body of the present chapter up to this point in four important respects, corresponding seriatim to the four features of the former procedure. In the first place, the committee appointed no auxiliary subcommittees of specialists to frame the definitions, although its predecessor, the Committee on the Definition of the Unit and to Investigate the Practice of Colleges in the Admittance of Students with Conditions, had asked to be empowered to do so. Nor, in the second place, has this mode of definition-making followed the older practice of preparing syllabi. It is not to be understood that the committee as a whole would not approve of the preparation of such syllabi by specialists. The writer does

[1] *Fourth Annual Report of the Carnegie Foundation for the Advancement of Teaching*, 1909, p. 131.

[2] *Ibid.*, p. 133.

[3] *Ibid.*, p. 134–60.

not presume to speak for it in this respect. It is conceivable that an adequate definition may have to give consideration in part to syllabi—syllabi that are suggestive rather than imperative, and that offer a sufficiently wide range of topics and elasticity of order to make possible all necessary adaptation to important local conditions. The fact, however, that the committee has *not* followed the older practice, but has, instead, attacked the problem of definition-making at a point essentially different, is of great significance. In the third place, as will be seen, the committee did not begin the work of actually framing definitions until it had secured a substantial body of facts as to the practices obtaining in the teaching of subjects to be defined in the secondary schools on the accredited lists of the Association. Lastly, the facts gathered are largely administrative in character. The strongest argument that can be presented in support of the administrative definition of units is the body of facts appearing in subsequent chapters, and for this reason it is deemed unnecessary to say anything here on behalf of this feature of the method.

In September, 1915, a circular letter was sent out to the principals of all the 1,047 secondary schools then on the accredited list of the North Central Association, requesting them to mail to the office of the committee the names and addresses of, and the subjects taught by, those of their heads of departments or teachers whom they considered to be "constructively interested in the development of effective courses of study and markedly successful in carrying their plans to realization," and who would be "willing to co-operate with the committee in its efforts to define the unit." A total of 506, or slightly less than half the principals, supplied such lists promptly enough to be of use in the investigation. The teachers and heads of departments on these lists, when classified by subjects taught, totaled 2,949. During October, November, and December, 3,717 questionnaires inquiring into the status of the teaching of the following several secondary-school subjects were addressed to these teachers: Latin, Greek, modern languages (German, French, Spanish), mathematics (elementary algebra, plane geometry, advanced algebra, solid geometry, and trigonometry), science (physiography, botany, zoölogy, biology, physiology, chemistry,

and physics), general science, agriculture, history (ancient, mediaeval and modern, English, and American), civics, economics, manual training, home economics and household art, commercial subjects, art, music, and public speaking. It is to be noted that the questionnaires for the modern languages, mathematics, science (except for general science and agriculture, for which special questionnaires were prepared), and history were of the "blanket" type—that is, were so framed that they might be used for any of the special divisions of the subject. No investigation was made into the status of the teaching of English, normal-training subjects, or physical training. For its definitions in English the committee already had available a good statement of the facts of practice in a report of a committee of the National Council of Teachers of English.[1]

The disparity between the total number of teachers and the number of questionnaires sent out is in great part to be accounted for by the fact that to a number of teachers reported as teachers of "modern language," "mathematics," "science," and "history" two of the blanket questionnaires were sent in order to make it possible for them to report for more than one division of the subjects, in case they were teaching more than one.

The total number of responses to these questionnaires received in time to be incorporated in this study was 1,570. These 1,570 responses have come from 416 different schools distributed by states, as shown in Table I. The number of schools from which responses to the questionnaires have been received in the respective states is roughly proportional to the number of accredited schools in these states, as may be seen by a comparison of these figures with the lists of schools by states to be found on pages 63–79 of the *Proceedings of the Twentieth Annual Meeting of the North Central Association of Colleges and Secondary Schools* (1915), the lists used in this investigation. This justifies the conclusion that the facts of practice presented in this study are at least fairly numerically representative of the schools of the various states.

[1] "Types of Organization of High-School English," *English Journal*, II (1913), 575–96.

The distribution of the 1,570 responses by subjects to the questionnaires is shown in Table II. A glance at this table shows the wide variation in the number of replies received in the several subjects. As these, however, are roughly proportional to the numbers of teachers and heads of departments whose names were submitted by the principals, the small number of responses in some subjects and the large number in others are not to be attributed to the greater readiness to respond of teachers in the

TABLE I

DISTRIBUTION BY STATES OF THE 416 SCHOOLS FROM WHICH RESPONSES TO QUESTIONNAIRES IN THE VARIOUS SUBJECTS HAVE BEEN RECEIVED

State	Number of Schools
Colorado	14
Illinois	74
Indiana	35
Iowa	24
Kansas	26
Michigan	43
Minnesota	29
Missouri	24
Montana	9
Nebraska	18
North Dakota	11
Ohio	49
Oklahoma	7
South Dakota	13
Wisconsin	40
Total	416

latter than in those of the former, but must be explained by other causes. Some examples in point are the following: Greek has a smaller representation than Latin because the former has been dropped from practically all high-school programs of study; French does not have as strong a holding in North Central high schools as does German; physiology does not very frequently appear in high-school programs of study and, when it does appear, is frequently delegated to some teacher not especially prepared to teach the subject who chances not to have a full teaching program.

Other explanations might be offered, but those already given will suffice for illustration.

The particular method used in gathering the facts of practice for this study and the proportion of responses suggest the conclusion

TABLE II

DISTRIBUTION BY SUBJECTS OF THE 1,570 RESPONSES TO THE QUESTIONNAIRES IN THE VARIOUS SUBJECTS

Subject	Number of Responses
Latin	105
Greek	7
German	161
French	29
Spanish	10
Elementary algebra	112
Plane geometry	122
Advanced algebra	37
Solid geometry	10
Trigonometry	11
General science	19
Physiography	23
Botany	27
Zoölogy	16
Biology	17
Physiology	5
Chemistry	94
Physics	113
Agriculture	49
Ancient history	71
Mediaeval and modern history	52
English history	17
American history	104
Civics	29
Economics	40
Manual training	100
Home economics and household art	63
Commercial subjects	74
Art	19
Music	27
Public speaking	7
Total	1,570

that the reports of the practices here given constitute in general composite photographs of the practices of the best teachers in the best secondary schools on the accredited list of the Association. However, this cannot be considered the universal rule, and the

writer does not presume to state that all of the best schools have made response nor to deny that many of the weaker schools are represented. But, roughly speaking, those principals who are most forward-looking would be most likely to respond to the circular letter sent out to them, and this would especially apply in this instance because, in the same letter, was a request that these principals make a brief statement to accompany the list of teachers as to what had been done toward the reorganization of the secondary schools of their communities through such changes as the institution of the six-and-six plan, the establishment of the junior and senior high schools, etc. In the next place, as has been already stated, they were asked to name those of their heads of departments or teachers whom they consider to be constructively interested in the development of effective courses of study and markedly successful in carrying their plans to realization. Finally—and, again, roughly speaking—the teachers who responded to the questionnaires are the most alert and progressive of those to whom the inquiries were addressed.

The purpose and method of the investigation having thus been briefly described, the task of the remainder of the study is to present the findings.

CHAPTER II

FOREIGN LANGUAGES

A. Latin

I. DISTRIBUTION OF RESPONSES TO THE INQUIRY

Responses to the inquiry in Latin were made by 105 teachers in schools distributed as follows:

TABLE III

DISTRIBUTION BY STATES OF THE SCHOOLS FROM WHICH RESPONSES TO THE INQUIRY IN LATIN HAVE COME

State	Number of Teachers Reporting
Colorado	5
Illinois	17
Indiana	13
Iowa	9
Kansas	6
Michigan	7
Minnesota	6
Missouri	4
Montana	2
Nebraska	4
North Dakota	1
Ohio	17
Oklahoma	2
South Dakota	4
Wisconsin	8
Total	105

II. THE OFFERING IN LATIN

THE TIME ELEMENT

Years in the course.—The lengths in years of the courses in Latin are shown in Table IV. The 6 schools in which the offering extends through more than four years teach the subject in the seventh and eighth grades.

Weeks per year.—Except for a few schools offering Latin in the seventh and eighth grades, the number of weeks per year in the courses in Latin almost universally conforms to the number of weeks in the school year, i.e., the courses are very seldom less than 36 weeks in length. One teacher each reports 32, 34, and 35 weeks, the rest reporting 36–42 weeks. It is probable that the teachers reporting 32 and 34 weeks exclude the weeks set apart for examination.

TABLE IV

LENGTH IN YEARS OF THE COURSES IN LATIN

Length in Years of the Course	Number of Schools
2	2
3	2
4	95
5	4
6	2
Total	105

Periods per week.—The number of periods per week is almost always five, although 5 schools report four periods in the first year; 4, four periods in second and third; and 5, four periods in fourth.

Length of periods.—The length of the class period is usually either 40 or 45 minutes. In 2 of the schools reporting these lengths of period, additional periods of equal length are reported for supervised study. The exceptions are: 10 schools reporting 50-, 55-, or 60-minute periods, and 3 others, who signify that time for supervised study is required in addition, reporting 25- to 35-minute periods.

LATIN IN THE GRADES OF THE ELEMENTARY SCHOOL

Although 2 schools report some work in Latin in the seventh grade and 8 in the eighth grade of the elementary school, there is no common practice as to high-school recognition of it. In 4 of the schools reporting Latin in eighth grade, there is no special offering for this grade, the pupils merely being permitted to carry first-year high-school Latin. In no case does the work offered in the elementary grades seem to affect, except in the first year of the high

school, the usual four-year sequence of high-school Latin, although it is probable that in 2 schools students who have taken the Latin while in the elementary grades may take Caesar in their first high-school year, Cicero in second, and Virgil in third.

Of the 5 schools making answer to the question as to high-school recognition of Latin taken in the elementary grades, one allows a semester's credit, one permits the election of second- or third-semester Latin without granting credit toward graduation from the high school for the work in Latin taken in the grades, one grants credit for one year, one implies that the work covered is too small in amount to receive credit, and one has not yet established its practice.

CREDIT FOR A SINGLE YEAR OF LATIN

The schools are fairly evenly divided as to granting credit toward graduation for a single year of Latin, 54 granting and 49 denying it. A very few of the schools mention granting such credit in some courses, as manual training, commercial, and normal, and denying it in others, such as classical and college preparatory.

WHEN FIRST-YEAR LATIN MAY BE TAKEN

Table V shows in what years the student may begin his study of Latin in the schools reporting. It will be seen that first-year

TABLE V

YEAR OR YEARS IN WHICH FIRST-YEAR LATIN MAY BE TAKEN

Year in High School	Number of Schools
First (only)	17
First or second	7
First, second, or third	32
Any year	41
First or third	6
First, third, or fourth	2
Total	105

Latin is not at all conceived as exclusively a first-year high-school subject, the practice in 81 schools—more than three-fourths of those answering—opening it to students in the later years of their courses.

In answer to the question, "If the language may be begun at points in the high-school course two years apart (e.g., in the first year and also in the third year) or more, are the students from the different years cared for in the same division?" 85 teachers say "Yes," none say "No," while the remaining 20 do not reply. We may conclude that no schools provide special divisions for the students from the later years. A few teachers volunteer the information that it seldom happens that first-year Latin is taken by students in the later years of their high-school courses.

III. ORGANIZATION OF THE COURSES

First-year Latin.—The content of the course in first-year Latin is very generally determined by the textbook used. Ninety per cent indicate that this is true of (*a*) the reading and translation of the course, only 7 per cent reporting the use of supplementary material; (*b*) 92 per cent state or imply that the text furnishes all the work in grammar and syntax; and (*c*) 80 per cent, that it includes all the work done in the writing of Latin. The remainder do not reply.

Second-year Latin.—(*a*) The reading and translation in the second year is constituted in 84 per cent of the schools of Books i–iv of Caesar, and, in an additional 12 per cent, of material from the seven books equivalent in amount to the first four. A single school reports less than this amount. Three schools report the reading of selections from Caesar, together with other materials, viz., *Viri Romae*, Nepos, *New Gradatim*. (*b*) Practically all schools making answer provide work in grammar and syntax, slightly more than half specifying the use of grammar or composition texts, most of the remainder drilling on "hard clauses," following a system of review, studying syntax "as met," etc. (*c*) Almost half base the work in the writing of Latin on a composition manual, 10 per cent base it on the Latin read, while 40 per cent report the teaching of prose composition, but do not define its character.

Third-year Latin.—(*a*) Ninety-three per cent of the schools epitomizing their third-year courses report the reading and translation of six orations of Cicero, these being the four against Cataline and two of the following: for Archias, the Pompeian Law, and the

Manilian Law. Five add "some letters" of Cicero, while a very few report some sight reading or selections from Sallust and Ovid. The facts as to work in (*b*) grammar and syntax and in (*c*) the writing of Latin are much the same as reported for second-year Latin, except that a larger proportion do not reply, from which we may conclude that these aspects of the work are not as frequently emphasized as in the first two years or are not as carefully organized.

Fourth-year Latin.—(*a*) All of the 94 schools outlining the fourth-year course in Latin report the reading and translation of Virgil. The amount read is with few exceptions the first six books. But a single school reports less—Books i–iv. Ten schools add selections from Ovid, Cicero, or Sallust, the first-named being most commonly listed. Work in (*b*) grammar and syntax and in (*c*) the writing of Latin is much less often reported for the course in fourth-year Latin than for the courses in preceding years, and we may conclude from this that it much less often finds a clearly defined place. However, more than half report such work.

IV. METHODS

Of the 101 teachers who answer on this point 83 state that they are using the "grammar-translation" method in classes in beginning Latin. Twelve report the use of the "direct" method, although 9 of these say they are experimenting with it. The remaining 15 use a combination of the "grammar-translation" and "direct" methods.

Table VI shows to what extent certain special devices, materials, and activities are being used by the teachers of Latin. In addition to those appearing in the table, a few teachers mention such supplementary activities as debates, essays, letters in Latin, Roman legion and senate, and the making of Caesar's bridge.

The time spent in daily preparation by the students as reported by the teachers varies from 30 to 120 minutes. The modal practices for first year are 45 and 60 minutes, while in 58 per cent of all schools reporting for this year the time spent ranges between 40 and 60 minutes. The modal practices in the second year are 60 and 65–75 minutes, 66 per cent devoting from 45 to 75 minutes to the work. The modal points for both third and fourth years are 60 and

90 minutes, 74 per cent and 76 per cent of the schools, respectively, being included within these limits. It will thus be seen that the

TABLE VI

NUMBER OF TEACHERS REPORTING THE USE OF VARIOUS DEVICES, MATERIALS, AND ACTIVITIES

Devices, Materials, and Activities	Number of Teachers Reporting
Maps	87
Correlation	81
Pictures	72
Contests	42
Exhibits	36
Charts	35
Magazines	33
Games	32
Perception cards	25
Stereopticon	22
Latin club	15
Emphasis on English derivatives	10
Plays	3
Total number making responses to questionnaire	105

tendency is to require longer daily preparation in the more advanced courses in Latin.

V. AIMS

Table VII contains the aims in the teaching of Latin that were listed in the questionnaire and the extent of the concurrence of the teachers in each of the aims listed. It is to be noted that there is very general assent to the aims as given. Although the teachers were asked to give other aims, very few did so, and those aims which were added, with one exception—"correlation with geography"—readily classify under those that were already listed in the questionnaire. We cannot be far wrong in concluding that those listed in Table VII comprehend what these teachers aim to make the net results of their courses in Latin.

VI. SUMMARY

1. The course of study in Latin extends almost universally through four years.

2. A small proportion of schools teach beginning Latin in the upper grades of the elementary school. This offering in the elementary grades does not seem to affect the last three years of the usual four-year sequence, nor is there any standard practice as to recognition on a high-school basis for such work.

3. Somewhat more than half the schools grant credit toward graduation for a single year of Latin.

TABLE VII

EXTENT OF CONCURRENCE OF TEACHERS OF LATIN IN THE VARIOUS AIMS LISTED IN THE QUESTIONNAIRE

Aims	Number of Teachers Concurring
Correct and ready pronunciation	93
Ability to read and understand Latin of the grade usually offered in the Freshman year in college	97
Ability to translate such Latin into English	97
Ability to write Latin of the grade usually required in the Freshman year in college	97
A ready, accurate, and fairly complete working knowledge of Latin grammar	101
A better understanding of English word-meanings and the grammatical structure of the English language	103
A fair knowledge of the history, manners, and customs of the Romans and their influence on Western civilization	92
A fair knowledge of the mythology of the Greeks and Romans	91
Assenting to all the preceding aims	74
Total number of responses	105

4. High-school courses in Latin are almost always a full school year of not less than 36 weeks in length with five periods of 40 or 45 minutes per week. A few schools have made provision for supervised study.

5. The usual amounts of time required of the students for daily preparation are 40–60 minutes in the first year and 60–90 minutes in the third and fourth years, although a number of schools require less, a few as little as 30 minutes, while others require more, some as much as 120 minutes.

6. First-year Latin is not conceived as exclusively a first-year high-school subject, since more than three-fourths of the teachers reporting signify that it is open to students from the later years of the high school.

7. The content of the course in first-year Latin is determined in all but a few schools by the textbooks used. The reading and translation of subsequent courses have been well standardized, as in almost all schools the second year concerns itself with the first four books or the equivalent of Casear's *Gallic War*, the third with six orations of Cicero, and the fourth with the six books of Virgil. Although work in grammar and syntax and the writing of Latin appear in the second, third, and fourth years, the proportion of schools reporting it decreases from all in the second to somewhat more than half in the fourth; there is a tendency toward the disappearance of its formal recognition in the later years.

8. The grammar-translation method is most commonly used, although some schools are reporting the use of the direct method, and others a combination of the grammar-translation and the direct methods.

9. The teachers report the use of a number of special devices, methods, and activities.

10. There is general agreement as to the aims that should dominate the teaching of Latin.

B. Greek

1. Distribution of the Responses to the Inquiry

Responses to the inquiry in Greek were made by teachers in schools distributed as shown in Table VIII. The small number

TABLE VIII

Distribution of the Schools from Which Responses to the Inquiry in Greek Were Received

State	Number of Schools Reporting
Illinois	3
Indiana	1
Missouri	1
Nebraska	1
Ohio	1
Total	7

reporting, as is stated in chapter i, is due in large part to the fact that Greek no longer finds a place in high-school programs of study.

II. THE OFFERING IN GREEK

THE TIME ELEMENT

Three schools report a two-year and 4 a three-year course in Greek. The work for each year extends through at least 36 weeks in all schools. With the exception of 1 school in which Greek in the fourth year is given but four periods per week, the common practice is five periods per week. These periods are 45 minutes in length, except for 2 schools in which they extend through 50 and 55 minutes.

CREDIT FOR A SINGLE YEAR

Five of the schools grant credit toward graduation for a single year of Greek; 2 deny it.

WHERE BEGINNING GREEK APPEARS

Three schools list the first course in Greek as a first-year, 4 as a second-year, and 1 as a third-year high-school subject. Inquiry was not made as to other years in which the student may elect the beginning course.

III. ORGANIZATION OF THE COURSES

First-year Greek.—(*a*) The reading and translation in first-year courses include what appears in beginning textbooks, with usually some portions of the *Anabasis* in addition. The work in (*b*) grammar and syntax and in (*c*) the writing of Greek is limited to what appears in the first-year text used.

Second-year Greek.—(*a*) The reading and translation content of this course is either the first four books of the *Anabasis* (3 schools) or three books of the *Anabasis* with three books of the *Iliad* (3 schools). The work in (*b*) grammar and syntax is either based on a special manual or upon "syntax as met," while that in (*c*) the writing of Greek is drawn from a composition manual or is based upon the Greek that is read.

Third-year Greek.—(*a*) For reading and translation 2 schools cover six books of the *Iliad*, one of these adding "some" *Odyssey*. Two others cover only the first four books of the *Iliad*, one of them reporting some additional work in a Greek reader. The

work in (*b*) grammar and syntax is reported as "following the text" or teaching it "as met," and that in (*c*) the writing of Greek is drawn from composition texts or is based upon the material read.

IV. METHODS

In 4 schools the method used in classes in beginning Greek is the grammar-translation method and in 3 schools a combination of this and the direct method.

The special devices, materials, and activities of which teachers of Greek avail themselves are shown in Table IX. In addition to these, one teacher reports the use of the Greek testament, translation being made from merely hearing it read.

TABLE IX

NUMBER OF TEACHERS OF GREEK REPORTING THE USE OF VARIOUS DEVICES, MATERIALS, AND ACTIVITIES

Devices, Materials, and Activities	Number of Teachers
Correlation with other subjects	5
Maps	4
Pictures	4
Stereopticon	2
Exhibits	2
Perception cards	1
Charts	1
Magazines	1
Contests	1
Classical club	1
Total number of teachers reporting	7

The time spent in daily preparation by the students ranges from 45 to 120 minutes. The most common amount required by the work is 60–75 minutes.

V. AIMS

Table X contains the aims in the teaching of Greek that were listed in the questionnaire and shows the extent of the concurrence of the 7 teachers in each of the aims listed. Although the teachers were asked to give other purposes, none did so, and we may therefore conclude that those listed comprehend what these teachers aim to make the net results of their courses in Greek.

VI. SUMMARY

(It should be kept in mind that the following summary is based upon but 7 responses of teachers of Greek.)

1. Greek has practically disappeared from programs of study in the secondary schools of North Central territory.

TABLE X

EXTENT TO WHICH TEACHERS OF GREEK CONCUR IN THE AIMS LISTED IN THE QUESTIONNAIRE

Aims	Number of Teachers Concurring
Correct and ready pronunciation	7
Ability to read and understand Greek of the grade usually offered in the Freshman year in college	6
Ability to translate Greek into English	7
Ability to write Greek of the grade usually required in the Freshman year in college	6
A better understanding of the English word-meanings and the grammatical structure of the English language	6
A fair knowledge of the history, manners, and customs of the Greeks and their influence on Western civilization	7
A fair knowledge of the mythology of the Greeks	6
Some idea of the forms of literature which the Greeks have given to the world	4

2. The courses offered are either two or three years in length. The work for each year extends through at least 36 weeks, usually with five 45-minute recitation periods per week.

3. The time required for preparation varies greatly. Students usually spend from 60 to 75 minutes in daily preparation.

4. Most of the schools grant credit for a single year of Greek.

5. There is no standard year of appearance for courses in beginning Greek.

6. The content of courses in Greek does not seem to have been as well standardized as that of courses in Latin.

7. The grammar-translation method is used more commonly in the instruction of beginning classes, although a combination of grammar-translation and direct methods is also reported.

8. The teachers report the use of several devices, methods, and activities.

9. There is rather general agreement as to what should be the net results to the student of the course in Greek.

C. The Modern Languages

I. DISTRIBUTION OF RESPONSES TO THE INQUIRY

Responses to the inquiry in modern languages were made by teachers in schools distributed as shown in Table XI.

TABLE XI

Distribution by States of the Responses to the Inquiry in Modern Languages

State	Number of Teachers Reporting		
	German	French	Spanish
Colorado	7	.....	2
Illinois	29	8	.....
Indiana	21	.....	.....
Iowa	8	.....	.....
Kansas	10	.....	.....
Michigan	20	5	1
Minnesota	10	3	.....
Missouri	6	3	2
Montana	3	.....	1
Nebraska	4	1	.....
North Dakota	3	.....	.....
Ohio	19	5	2
Oklahoma	3	1	.....
South Dakota	3	.....	.....
Wisconsin	15	3	2
Total number of teachers reporting	161	29	10

II. EXTENT OF THE OFFERING

THE TIME ELEMENT

Length in years of the courses.—Table XII shows the number of schools reporting two-, three-, and four-year courses in the modern languages. It will be seen that the modal length of courses in German and French is two years, although three- and four-year courses are also common. Although one may easily impart too much significance to the fact because of the small number of

reports received, it is interesting to note that twice as many schools offer a four-year as offer a two-year course in Spanish.

TABLE XII

LENGTH IN YEARS OF THE COURSES IN THE MODERN LANGUAGES

Length of Course in Years	Number of Schools		
	German	French	Spanish
2	62	14	3
3	43	9	1
4	43	5	6
Total number of schools reporting	148	28	10

Weeks per year.—With scarcely any exceptions the length of each year of the courses in the modern languages is 36 or more weeks. Two exceptions appear for German, one each of 34 and 35 weeks, and one of 33 weeks appears for French. There are no exceptions for Spanish.

Periods per week.—Almost all schools follow the practice of five recitation periods per week. Four exceptions appear in the courses in German: 2 schools report five periods in first year and four in second; 1 school each reports four and three periods per week throughout all years of the course. Two exceptions are reported for French, one each of four and three periods throughout. No exceptions are reported for Spanish.

Length of periods.—Table XIII shows the lengths of periods in use in the classes in the modern languages. This table indicates that the usual length of periods is 40 or 45 minutes. The 2 schools reporting 30-minute periods, 2 of those reporting 40-minute periods, 1 of those reporting 60-minute periods, and the 2 reporting 80-minute periods for German, i.e., a total of 7 schools, state or imply that they provide time for supervised study—in the case of the shorter periods in addition to, and in the case of the longer periods as a part of, the time reported. The 2 schools reporting 80-minute periods for French devote half of the period to supervised study. No 80-minute periods are reported after the second year.

MODERN LANGUAGES IN THE ELEMENTARY GRADES

German and French appear in the elementary grades of a number of school systems. The numerical facts of such appear-

TABLE XIII

NUMBER OF SCHOOLS REPORTING VARIOUS LENGTHS OF CLASS PERIODS IN THE MODERN LANGUAGES

Length of Period in Minutes	Number of Schools		
	German	French	Spanish
30	2	*1	.....
40	77	7	4
45	67	17	5
50	6	2	.....
60	6	.....	1
80	2	2	.....
Total number of schools reporting	160	29	10

* This school reports "30- and 60-minute" periods.

ance are set forth in Table XIV. This table indicates that German is much more commonly taught in the grades of the elementary school than is French, and that the number of schools teaching

TABLE XIV

NUMBER OF SCHOOLS REPORTING GERMAN AND FRENCH IN THE GRADES OF THE ELEMENTARY SCHOOL

Grades in Which Study of Modern Languages Appears	German	French
Fourth	4	.....
Fifth	8	.....
Sixth	11	2
Seventh	18	3
Eighth	23	2
Total number of schools reporting German and French in the grades of elementary schools	31	4

it increases with considerable regularity from the fourth grade to the eighth.

Twenty-four schools make more or less definite responses to the inquiry as to high-school recognition of elementary-school work in German. Of these, but a single school fails to grant recognition

in some sort. The extent of recognition in the remaining schools is shown by the following:

One-half year of credit is granted in 5 schools.
One year of credit is granted in 9 schools.
One-half to one year of credit is granted in 1 school.
Two years of credit are granted in 2 schools.
Students enter advanced courses in 5 schools.
Students proceed more rapidly in 1 school.

No inquiry was made into the relation of the amount of credit granted to the time devoted to the work in the grades.

CREDIT FOR A SINGLE YEAR OF MODERN LANGUAGE

Table XV shows the practice in the schools of granting or denying credit for a single year of modern language. The preponderance of practice favors granting such credit, but this tendency

TABLE XV

NUMBER OF SCHOOLS GRANTING AND DENYING CREDIT TOWARD GRADUATION FOR A SINGLE YEAR OF MODERN LANGUAGE

Type of Response	Number of Schools			
	German	French	Spanish	The Three Languages
Granting credit for a single year.....	103	14	5	122
Denying credit for a single year.....	53	11	5	69
Not replying.....	5	4	0	9
Total number of schools.....	161	29	10	200

is more marked in German than in French and Spanish, although the number of replies in the two languages last named may be too small to give a correct representation of the actual situation as to credit for a single year in them.

WHEN STUDENTS MAY BEGIN THE STUDY OF A MODERN LANGUAGE

Table XVI contains the answers to the question, "In what years may the high-school student begin his study of this language?" One essential fact shown by this table is the absence of any standard practice as to the place the first year of modern language may

take in the students' curricula, the first year of modern language being open to students over a wide range of years. This may be illustrated by the case of German. A scrutiny of the table discovers that 104, or 64.6 per cent, of the 161 schools permit students

TABLE XVI

YEAR OR YEARS IN WHICH THE STUDY OF MODERN LANGUAGES MAY BE BEGUN

Year or Years	Number of Schools			
	German	French	Spanish	The Three Languages
First	4	.....	.....	4
Second	4	2	.....	6
First or second	2	2	.....	4
Third	28	4	.....	32
First, second, or third	37	5	3	45
First or third	10	1	1	12
Second or third	13	5	.....	18
Any year	42	6	4	52
First, third, or fourth	1	.....	.....	1
Second, third, or fourth	14	1	.....	15
Third or fourth	6	2	2	10
No answer	.....	1	.....	1
Total number of schools reporting	161	29	10	200

as far as two (e.g., from the first and third years) or more years apart to elect first-year German. While this has an important bearing on the merely mechanical aspects of program-making, its greatest significance is to be seen in its relation to the paragraphs immediately following.

SPECIAL PROVISION FOR STUDENTS WHO BEGIN A MODERN LANGUAGE AT POINTS IN THE HIGH-SCHOOL COURSE TWO OR MORE YEARS APART

In response to the question, "If the language may be begun at points in the high-school course two years apart (e.g., in the first year and also in the third year) or more, ... are the students cared for in the same division?" the teachers answer as indicated in Table XVII. The facts appearing in the table, especially when studied in connection with those presented in the preceding table, lead to the conclusion that if different standards are not imposed upon students from such widely separated points in their high-school courses—and we cannot be far wrong when we doubt such a

possibility—there is a very general failure to recognize and provide instruction in modern language adapted to the maturity and ability of students from the various years. One of two situations is likely to result in most schools: either there will be students from the later years of the high school who are not being called upon to do work which their greater maturity and capacity make possible, or there will be students from the earlier years who are more or less confused by methods badly adapted to their needs or who are unjustly measured because they are asked to come up to the standards which immaturity makes unattainable for them. In either case there is no adequate discrimination between standards for students in the upper and lower years of the high school.

TABLE XVII

NUMBER OF SCHOOLS IN WHICH STUDENTS BEGINNING A MODERN LANGUAGE AT POINTS IN THE COURSE TWO OR MORE YEARS APART ARE CARED FOR IN THE SAME DIVISIONS

The Modern Language	Are Students Two or More Years Apart Cared For in the Same Division?			
	Yes	No	No answer	Total
German	98	17	46	161
French	18	1	10	29
Spanish	6	1	3	10
Total	122	19	59	200

The teachers of the modern languages in schools providing separate sections for students two or more years apart beginning a modern language were asked to state what quantitative and qualitative differentiations are made for such sections. The quantitative differentiations reported for German are as follows: less reading and grammar in lower classes (6 schools); simpler conversation and less classical material (2 schools); third-year beginning class does "twice as much" as first-year beginning class (2 schools); one-third more work covered in later years (2 schools); more grammar in later years (1 school). The qualitative differentiations reported are: simpler reading in classes from earlier years (2 schools); no complicated constructions in earlier years (2 schools); more con-

versation and less syntactical drill in earlier years (2 schools); conversational constituent more difficult in later years (1 school).

III. METHODS

Table XVIII shows what methods are being used in beginning classes in the modern languages. The grammar-translation method has given way to the direct or a combination of the grammar-translation and the direct methods. The direct method is reported as being used either exclusively or in combination with the grammar-translation method in more than three-fourths of the schools. The natural method is reported in a small number of schools.

TABLE XVIII

NUMBER OF SCHOOLS REPORTING THE SEVERAL METHODS IN BEGINNING CLASSES OF MODERN LANGUAGE

Method	German	French	Spanish	The Three Languages
Grammar-translation	22	6	.....	28
Direct	62	8	3	73
Combination	62	14	7	83
Natural	5	1	.....	6
Not answering this question	10	.....	.....	10
Total number of schools reporting	161	29	10	200

Some light on the extent to which teachers of the modern languages avail themselves in their instruction of the materials, devices, and special activities may be drawn from Table XIX. In addition to those listed, the following are reported by 1–4 teachers each (*a*) for classes in German: attendance at German plays, presentation of short and simple programs, study of German catalogues of farm implements, lectures in German by educated Germans, and German table in lunchroom; (*b*) for classes in French: attendance at French plays, correspondence with young people in French schools, French table at luncheon, and original stories in French; (*c*) for Spanish: letter-writing.

IV. AIMS

Table XX shows the extent to which the aims listed in the questionnaire were concurred in by the teachers of modern

languages. Although the teachers were asked to state other aims, very few did so, and those which were added were without exception

TABLE XIX

NUMBER OF TEACHERS REPORTING THE USE OF VARIOUS METHODS, DEVICES, AND ACTIVITIES

Materials, Devices, and Special Activities	Number of Teachers Reporting		
	German	French	Spanish
Songbooks	114	10	.....
Stereopticons	25	4	2
Postals	81	18	4
Phonographs	29	1	.....
Maps	103	18	4
Phonetic charts	10	6	.....
Wall pictures	63	13	2
Illustrated books	112	14	3
Illustrated magazines	97	15	5
Newspapers	5	.....	1
Clubs	25	.....	.....
Plays	9	2	.....
Games	9	2	1
Total number of schools reporting	161	29	10

TABLE XX

EXTENT OF CONCURRENCE OF TEACHERS OF MODERN LANGUAGES IN THE AIMS LISTED IN THE QUESTIONNAIRE

Aims	Number of Teachers Concurring		
	German	French	Spanish
Correct and ready pronunciation	158	29	10
Ability to speak and understand the spoken language	139	27	10
Ability to translate the language into English with facility	142	27	10
Ability to read the language with understanding without the interposition of English	145	27	9
A ready, accurate, and fairly complete working knowledge of the grammar of this language	151	26	10
Knowledge of the history, manners, customs, and ideals of the country to which the language is native	130	24	7
A better understanding of the grammatical structure of the English language	118	23	7
Concurring in all the aims listed	86	17	5
Total number of teachers reporting	161	29	10

readily classifiable under those already listed in the questionnaire. We are probably justified in concluding that those listed, in addition to what is implied in the next paragraph, comprehend all that these teachers aim to make the results of their courses in the modern languages.

Differentiation of purpose to meet future vocational needs of students is recognized by some schools, as will be seen in Table XXI. The kinds of differentiation reported are commercial, scientific,

TABLE XXI

NUMBER OF SCHOOLS DIFFERENTIATING COURSES IN MODERN LANGUAGES ALONG COMMERCIAL, SCIENTIFIC, AND INDUSTRIAL LINES

Language	Lines of Differentiation			Total Number of Responses
	Commercial	Scientific	Industrial	
German	18	13	15	161
French	5	3	1	29
Spanish	9	.....	.....	10

and industrial. The small proportion of schools recognizing such differentiation in the work in German and French is at once apparent. This situation contrasts strikingly with that in Spanish, in which all but a single school recognize the desirability urged by the campaign for commerce with the South American countries of effecting a commercial differentiation.

The year or years of the language sequence in which the differentiations appear, in so far as they are reported, are recorded in Table XXII. Such differentiation does not appear in a large proportion of the schools reporting it until the second year. This is true even of Spanish, the most markedly vocational of these languages.

V. SUMMARY

1. Courses of study in the modern languages extend through two, three, or four years, more commonly two than three or four in German and French. The course in Spanish is frequently four years in length.

2. The length of the school year determines the length of the year-course in modern languages, and this is almost without exception 36 or more weeks. There are usually five recitation periods

of 40 or 45 minutes per week. A small proportion of schools also provide time for supervised study in addition to the recitation period proper.

TABLE XXII

NUMBER OF SCHOOLS REPORTING DIFFERENTIATION ALONG VOCATIONAL LINES IN THE VARIOUS YEARS OF THE MODERN-LANGUAGE SEQUENCE

Language	Year of the Language Sequence			
	First	Second	Third	Fourth
German	5	13	15	9
French	1	4	1	1
Spanish	1	8	4	2

3. Work in German and French, especially the former, is reported in the elementary schools. In almost all cases high-school recognition is given for it.

4. Sixty per cent of the schools grant credit toward graduation for a single year of modern language.

5. The first year of a modern language has found no standard place in the high-school program. Only a small proportion of schools provide special sections for students two years or more apart in their high-school classification.

6. The direct method and a combination of the direct and grammar-translation methods are in most common use in beginning classes in modern languages. The grammar-translation and natural methods are also reported.

7. Teachers avail themselves of such materials, devices, and special activities as songbooks, stereopticons, postals, phonographs, maps, phonetic charts, wall pictures, illustrated books and magazines, newspapers, German or French clubs, plays, and games to add interest and value to the work.

8. (*a*) There is general agreement as to the aims that should dominate the courses in the modern languages.

b) A small proportion of schools recognize, by differentiation of the courses after the first year along commercial, scientific, and industrial lines, the future vocational needs of their students of German and French. Some differentiation along commercial lines is almost universal in the courses in Spanish.

CHAPTER III

MATHEMATICS

I. DISTRIBUTION OF RESPONSES TO THE INQUIRY

The distribution of the schools from which responses have come to the inquiry in mathematics is as follows:

TABLE XXIII

DISTRIBUTION, BY STATES, OF THE RESPONSES TO THE INQUIRIES IN MATHEMATICS

State	Number of Teachers Reporting in				
	Elementary Algebra	Plane Geometry	Advanced Algebra	Solid Geometry	Trigonometry
Colorado	3	2	2	.....	.....
Illinois	19	20	5	2	1
Indiana	11	14	3	.....	1
Iowa	6	6	6	3	.....
Kansas	8	8	2	.....	.....
Michigan	12	15	3	1	6
Minnesota	14	10	.....	.....	.....
Missouri	3	4	1	1	1
Montana	1	1	.....	.....	.....
Nebraska	6	6	4	.....	.....
North Dakota	3	3	.....	.....	.....
Ohio	11	16	8	3	1
Oklahoma	1	1	.....	.....	.....
South Dakota	3	4	1	.....	.....
Wisconsin	11	12	2	.....	1
Total number of teachers reporting	112	122	37	10	11

The small number of responses in the more advanced courses must be due to a considerable extent to their decreasing importance in the high-school students' curricula. This has been brought about largely by, among other causes, the recent democratization of the high-school programs of study through the introduction of a wider range of work and of subjects not formerly offered, and by the resulting marked tendency on the part of the higher institutions to drop advanced algebra and solid geometry as entrance requirements. Two reports on courses in algebra of college caliber have

been received, but such a small number of reports would give facts of too little significance to justify reproduction here.

II. EXTENT OF THE OFFERING AND REQUIREMENT

EXTENT OF THE OFFERING[1]

The divisions of mathematics which are being taught in the high schools of the North Central states may be implied from the foregoing to be elementary algebra, advanced (sometimes called "intermediate") algebra, plane geometry, solid geometry, trigonometry, and college (sometimes called "advanced") algebra. To what extent each high school is offering all this work was not investigated, but it may be implied to some extent from the number of responses received in each of the subjects, i.e., we may say that, although all schools both offer and teach elementary algebra and plane geometry, a smaller proportion both offer and teach advanced algebra, and even fewer both offer and teach solid geometry and trigonometry. A very few schools are offering and teaching algebra of college grade. It would be easy, however, to place too much faith in these implications.

YEARS IN WHICH COURSES IN MATHEMATICS APPEAR

The years in which the subdivisions of mathematics appear are presented in Table XXIV. The essential facts as to years in which such courses appear are as follows: (1) elementary algebra is almost without exception a first-year high-school subject; (2) plane geometry is markedly a second-year subject, but appears in the latter half of the second and the first half of the third year in 10 schools in which it follows both elementary and advanced algebra, and in the third year in 20 schools; (3) advanced algebra is primarily a third- and fourth-year subject, with more schools offering it in the former year; (4) solid geometry is a third- or fourth-year subject; (5) trigonometry is always reported for the last year of the high school.

The reasons most commonly given for placing elementary algebra in the first year are: (1) its necessity as a basis for higher mathematics and for the sciences, (2) its close connection with the

[1] Commercial arithmetic is treated in the chapter on commercial subjects.

arithmetic of the elementary schools, and (3) its simple, elementary, and, therefore, suitable nature. The reasons most commonly given for placing plane geometry in the second year are: (1) its sequential relation to algebra, (2) its necessity in this year as preparation for physics, and (3) the maturity of the students. This last reason is the one most commonly given for its place by teachers who report plane geometry as a third-year subject. The usual reasons given for placing advanced algebra in the third or the fourth year are: (1) the suitable maturity of the students, (2) their previous experience with geometry, and (3) the proximity to college. The few schools that report this subject in the second year do so in order to make the work in algebra continuous. Solid geometry is placed in the third year in some schools because of its sequential relation to the mathematics of the preceding years, and in the fourth year because of the maturity necessary to the visualization of three-dimensional figures and because of proximity to college. The place of trigonometry in the fourth year is determined automatically by the prerequisite work in algebra and geometry.

TABLE XXIV

NUMBER OF SCHOOLS REPORTING VARIOUS YEARS IN WHICH THE SEVERAL COURSES IN MATHEMATICS APPEAR

Subject	Year or Years in High School					
	1	2	2–3	3	3–4	4
Elementary algebra	108	4	.....	.....	.....	.....
Plane geometry	.....	91	10*	20	.....	.....
Advanced algebra	.....	4	1†	18	2†	10
Solid geometry	.....	.....	.....	4	2†	4
Trigonometry	.....	.....	.....	.....	.....	11

* In the last half of the second year and the first half of the third.
† May be taken in either year.

THE TIME ELEMENT

Weeks in the course.—With two exceptions, one of 18 weeks and the other of 48, a school year of 36 or more weeks is devoted to elementary algebra. With one exception of 34 weeks a school year of 36 or more weeks is devoted to plane geometry. The course in advanced algebra usually extends through a half-year of 18–20

weeks, but 5 schools extend it through a full year of 34 or more weeks. Solid geometry and trigonometry are always reported as half-year courses.

Periods per week.—The number of periods per week in elementary algebra, with one exception each of four and six periods, is uniformly five. The exceptions to this standard practice in plane geometry are only three, two of four periods and one of six periods. The exceptions in advanced algebra, solid geometry, and trigonometry are the same, one each of three and four periods.

Length of periods.—The lengths of periods are shown in Table XXV. With a small proportion of exceptions the lengths of periods

TABLE XXV

NUMBER OF SCHOOLS REPORTING VARIOUS LENGTHS OF CLASS PERIODS FOR COURSES IN MATHEMATICS

Length of Period in Minutes	Number Reporting for				
	Elementary Algebra	Plane Geometry	Advanced Algebra	Solid Geometry	Trigonometry
40	50	52	13	2	4
42	3	.....	4	1	1
43	2	4	.....	.....	.....
45	45	53	17	6	6
50	2	4	.....	.....	.....
55	1	.....	.....	.....	.....
60	6	5	2	1	.....
65	2	2	1	.....	.....
80	1	1	.....	.....	.....
Not reporting	.....	1	.....	.....	.....
Number of responses to questionnaire	112	122	37	10	11

are 40 and 45 minutes, the practice being almost evenly divided between these two. The one school each under elementary algebra and plane geometry reporting 80-minute periods devotes half this time to supervised study. Both schools reporting 65-minute periods in elementary algebra and plane geometry report supervised study during 30 minutes of this time, the remainder of the time being given over to recitation. Both of these schools require outside study in addition. Three other schools reporting 40-minute periods for elementary algebra and one school each reporting

40- and 45-minute periods for plane geometry provide additional periods of equal length for supervised study.

THE REQUIREMENT IN MATHEMATICS

Statements were received from 106 schools as to the amount of work in mathematics required for graduation. The facts are presented in Table XXVI. The table makes clear the following facts: (1) that the usual requirement of mathematics is two years; (2) that a small proportion of schools require less, some even having dropped mathematics as a required high-school subject; (3) that some schools still require two and one-half or three years, some of the latter perhaps out of deference to the older and now disappearing

TABLE XXVI

NUMBER OF YEARS OF MATHEMATICS REQUIRED FOR GRADUATION FROM THE HIGH SCHOOLS

Years Required	Number of Schools
None	5
1	5
2	69
2½	12
3	12
4	1
Depending on course	2
Total	106

college-entrance requirement of three years of mathematics; (4) that a single school imposes a four-year requirement; and (5) that 2 schools state that the requirement depends upon the course pursued by the student. Certain qualifications added by a few of the teachers indicate that a practice similar to that just stated under (5) appears in more schools than the tabulation enumerates. One school reporting a requirement of two years in most courses specifies three years for technical courses. Another school adds a third year to the usual two-year requirement for those taking the college-preparatory course. A few other schools permit departure from their usual two-year requirement in "some courses," but do not name these courses.

III. ORGANIZATION OF THE COURSES

The answers to the question, "What important deviations do you make in your course from the plan of the text you are using?" give full support to the conclusion that the content and organization of courses in mathematics are largely determined by the textbook used. It will be noted in Table XXVII that a large proportion of the teachers report that they make no important deviations. To these, because of the conscientious way in which the teachers generally have responded to our inquiry, we may safely add practically all of those who make no answer to the question.

TABLE XXVII*

DEVIATIONS FROM THE PLANS OF TEXTS USED REPORTED BY TEACHERS OF MATHEMATICS

Deviations from the Plan of the Text	Elementary Algebra	Plane Geometry	Advanced Algebra	Solid Geometry	Trigonometry
Omissions	21	29	8	1	.....
Additions	6	48	5	3	3
Shifts of order	21	.....	9	.....	1
None	42	31	13	6	6
No answer	19	18	4	.....	1
Total number of responses to the questionnaire	112	122	37	10	11

* Because a few deviations do not conform to the classifications adopted here, and also because a few teachers report two or three types of deviations, the numbers under the various categories are not, except in two instances, equal to the total numbers of responses to the questionnaire. These last have been introduced merely for purposes of comparison.

Almost all deviations reported were readily classifiable under the categories "Omissions," "Additions," and "Shifts of Order" appearing in the table. This may be illustrated for all the divisions of the field by quotations from typical deviations reported by teachers of elementary algebra: "omit some theory," "add drill work," "shift order," "defer graphing," "omit graphing," "simpler problems added," "factoring before fractions," "much extra work," "give mimeographed lessons" in addition, "introduce transposition early," etc. Only a few report deviations of as much significance as "commence with equation and make all else subordinate to it" and "correlate various branches of mathematics." In the case

of plane geometry 10 of the 48 "additions" reported refer to the introduction of "practical" problems.

IV. METHODS

DISPOSITION OF THE CLASS PERIOD

The teachers were asked to state what fractional parts of the recitation periods are devoted to recitation, study, teaching, and lesson assignment. Although the practices were ascertained for all the divisions of the field of mathematics, because these do not vary from subject to subject in any significant respects, only those

TABLE XXVIII

FRACTIONAL DISPOSITION OF CLASS PERIOD IN ELEMENTARY ALGEBRA

Devoted to	Minima	Maxima	Modal Practices
Recitation	$\frac{1}{8}$ (2)*	$\frac{3}{4}$ (5)	$\frac{1}{4}$ (10), $\frac{1}{3}$ (11), $\frac{1}{2}$ (23), $\frac{2}{3}$ (12)
Study	0 (50)	$\frac{1}{2}$ (3)	0 (50), $\frac{1}{4}$ (6), $\frac{1}{3}$ (8)
Teaching	$\frac{1}{10}$ (1)	$\frac{2}{3}$ (1)	$\frac{2}{9}$ (10), $\frac{1}{3}$ (11)
Lesson assignment	$\frac{1}{20}$ (2)	$\frac{1}{2}$ (1)	$\frac{1}{9}$ (11), $\frac{1}{8}$ (11), $\frac{1}{4}$ (11)

* The numbers in parentheses are the numbers of schools reporting the practices.

reported for the teaching of elementary algebra are reproduced here (Table XXVIII). From one-eighth to three-fourths of the class period is devoted to *recitation proper*, the modal practices being one-fourth, one-third, one-half, and two-thirds, these modal points suggesting a wide range of practice. From none to one-half of the class period is devoted to *study*, the modal points being none, one-fourth, and one-third. The noteworthy facts here are that a very large proportion of schools allow no time for study and that those who provide it restrict it to a small proportion of the class period. *Teaching* occupies from one-tenth to two-thirds of the period, the modal practices being two-ninths to one-third. *Lesson assignment* occupies one-twentieth to one-half the time, with modal practices at one-ninth, one-eighth, and one-fourth. It may be said that the data on this matter lack reliability in some degree because of the possibility of different interpretations of the words "recitation," "study," "teaching," and "assignment." Teaching, in particular, suffers from such lack of uniform definition.

In connection with this discussion of the disposition of the class period, we mention again the practice in several schools, reported under "Time Element" above, of providing in classes in elementary algebra and plane geometry for supervised study in connection with, and in addition to, the regular recitation period of 40 or 45 minutes.

TYPES OF METHOD FOUND MOST SATISFACTORY

The answers to the question as to which of the various methods, i.e., authoritative, deductive, inductive, analytic, and genetic, are being used have been assembled in Table XXIX. The deductive, inductive, and analytic methods seem to be most used, the authoritative and genetic being used by only a small proportion of teachers.

TABLE XXIX

TYPES OF METHOD FOUND MOST SATISFACTORY BY TEACHERS OF MATHEMATICS

Type of Method	Number of Teachers Reporting for				
	Elementary Algebra	Plane Geometry	Advanced Algebra	Solid Geometry	Trigonometry
Authoritative	29	20	3	2	2
Deductive	57	81	10	8	5
Inductive	79	71	15	2	6
Analytic	60	92	16	5	5
Genetic	19	24	2	1	1
Total number of responses to questionnaire	112	122	37	10	11

Many teachers report the use of more than one method, sometimes three or four, some stating specifically that different methods are pertinent at various times. Several other methods or other names for those already listed are reported by one or two teachers each: "grouping theorems," "heuristic," "lecture and dialogue," "synthetic," "development," and "suggestive."

SPECIAL DEVICES

Table XXX shows the extent to which certain special devices are being used by the teachers of algebra and trigonometry. A small number of teachers report that they are using tables of

squares, cubes, and cube roots. Only a few teachers of geometry report the use of the devices named in the table.

TABLE XXX

EXTENT TO WHICH CERTAIN SPECIAL DEVICES ARE REPORTED AS BEING USED IN TEACHING ALGEBRA AND TRIGONOMETRY

Device	Elementary Algebra	Advanced Algebra	Trigonometry
Tables of square roots	35	19	5
Tables of logarithms	12	25	11
Slide rule	2	6	5
Total number of responses to questionnaire	112	37	11

HISTORICAL NOTES

The following percentages of the teachers report the use of historical notes in their classes in mathematics: in elementary algebra, 37.8 per cent; in solid geometry, 30 per cent; and in trigonometry, 36.4 per cent. The small proportion of teachers who report the use of "a very few" and a number of others who make no answer to the question may be included with an approximate third of the teachers who answer "no." Some of the teachers who report that historical notes are not introduced plead lack of time as the reason for not making them a constituent of courses in mathematics. The figures just given indicate that such notes are more commonly used in the earlier than in the more advanced courses.

The values most commonly ascribed to this use of historical notes are the interest they add in "humanizing" the work and the light they throw on the development of the subject. On the other hand, some teachers who report that such notes are not constituents of their courses regard the historical aspect as non-essential, impractical, and unsuited to the maturity of the students.

CORRELATION OF ALGEBRA AND GEOMETRY

Table XXXI will give some information as to the proportion of teachers who are making efforts to correlate the work in algebra and geometry, although it can offer little as to the extent of correlation within the schools. In general, we may say that those answering

"yes" or "some" may be considered as having done something in the way of such correlation, whereas those who answer "very little," "no," or who do not answer may be classed together as

TABLE XXXI

EXTENT TO WHICH TEACHERS REPORTING MAKE EFFORTS TO CORRELATE ALGEBRA AND GEOMETRY

Subject	Yes	Some	Very Little	No	No Answer	Total Number Answering Questionnaire
Elementary algebra	44	23	14	19	12	112
Plane geometry	66	21	12	18	5	122
Advanced algebra	14	4	6	7	6	37
Solid geometry	2	.....	2	4	2	10
Total	126	48	34	48	25	281

doing nothing or practically nothing along this line. In figures this will mean that a total of 174 teachers have done something and that 107 have done nothing or practically nothing with such correlation.

The values which teachers say they have found in such correlation classify, with very few exceptions, under the following: (1) it makes the subjects easier of comprehension; (2) it teaches the unity of mathematics; and (3) it creates more interest in the subjects. A few teachers complain that such correlation confuses algebra students and that therefore the attempt in their schools has not met with success.

EFFORTS TO MEET CURRENT CRITICISMS OF HIGH-SCHOOL MATHEMATICS

The teachers were asked to describe briefly any efforts they have made to meet current criticisms of high-school mathematics. Table XXXII indicates that 174, or approximately 60 per cent, of the questionnaires signify that the teachers are making some effort to meet such criticisms. Those who do not answer the question may safely be included with those who report they are making none, thus leaving us free to conclude that approximately 40 per cent are making no such efforts. Perhaps many of these are of a mind with the one teacher who reports that he "ignores" the criticisms.

The kinds of effort described vary widely, and one is led to wonder how the teachers who report some of them can delude themselves into believing that they are seriously addressed to meet any criticism. For the most part, however, the efforts include reforms in the interest of the practical, the utilitarian. Under this teaching may be grouped efforts to use "problems of daily life,"

TABLE XXXII

NUMBER OF TEACHERS REPORTING EFFORTS TO MEET CURRENT CRITICISMS OF HIGH-SCHOOL MATHEMATICS

Subject	Number of Teachers			
	Reporting Some Effort	Reporting "None"	Not Answering	Total Number of Responses to Questionnaire
Elementary algebra	66	5	41	112
Plane geometry	78	4	40	122
Advanced algebra	21	1	15	37
Solid geometry	3	1	6	10
Trigonometry	6	.....	5	11
Total	174	11	107	292

"more concrete work," "more practical problems," "vocational problems," and "problems within the students' experiences." For example, such are mentioned 45 times by the 66 teachers of elementary algebra who signify that they are making efforts to meet current criticisms. The proportion reporting this type of effort is approximately the same for the other divisions of the field of mathematics.

V. AIMS AND VALUES

AIMS

The aims and purposes of the work in mathematics were set down with a great variety of expression. They are reducible, however, to about four general classes. The classes call for (1) a working knowledge of the subject, (2) preparation for subsequent academic work, (3) a stressing of the practical aspects, and (4) free play for the disciplinary values. The extent to which the aims as classified are reported by the teachers is shown in Table XXXIII. In the minds of the teachers disciplinary aims are manifestly most

important. It should be noted that emphasis upon the practical aspects and allowance for the free play of disciplinary values are not considered mutually exclusive, some teachers reporting both.

TABLE XXXIII

EXTENT TO WHICH CERTAIN TYPES OF AIMS ARE REPORTED BY TEACHERS OF MATHEMATICS

Aim	Elementary Algebra	Plane Geometry	Advanced Algebra	Solid Geometry	Trigonometry
A working knowledge of the subject	49	31	18	5	4
Preparation for subsequent academic work	39	43	13	3	5
Stressing the practical aspects	35	26	10	4	3
Free play for the disciplinary values	109	169*	24	6	4
Total number of responses to questionnaire	112	122	37	10	11

* Some teachers report more than one disciplinary value.

That some idea of the method used in the classification of aims may be given, typical aims and purposes reported by the teachers of elementary algebra are quoted here. Under the head of "A Working Knowledge of the Subject" were placed such statements as, "to manipulate formulae and generalize," "accuracy and skill in handling algebraic symbols," "easier solution for problems," "knowledge of the equation," and "to impart mathematical elements"; under "Preparation for Subsequent Academic Work" were placed such statements as the following: "aid in later mathematics and science," "to make the work in geometry easy," and "to prepare for college"; under "Stressing the Practical Aspects": "to make the work practical" and "to supplement and add to practical computation value of arithmetic"; under "Free Play for Disciplinary Values": "to develop power and accuracy," "to teach the child to think," "training the mind," "emphasis upon the disciplinary value," "to lay a foundation for analytic work of all kinds," "to teach definiteness, leading to assurance and poise," and "to develop the habit of taking initiative in any problem or

task." One cannot refrain from noting, on reading the statements in the questionnaires made in response to this inquiry, how much more glibly teachers speak of these disciplinary values than of those aims that classify under the three preceding heads.

EXTENT TO WHICH AIMS ARE FULFILLED

The teachers were asked to state to what extent they believe that their purposes are accomplished with various groups of pupils in the high school. The following groups were listed in the questionnaire: boys, girls, those preparing for college, and those preparing for trades. Nothing of significance appears when the answers are tabulated with respect to the four classes of aims listed above, as the teachers seem to have understood the question to be to what extent the courses in mathematics meet the needs of these groups of students. The proportions are the same for all four classes of aims. The tabulation of responses on the latter basis indicates that courses in mathematics more nearly approximate the needs of boys than of girls and of those preparing for college than of those preparing for trades. This is shown in Table XXXIV, which presents the facts for plane geometry and which will give a fair representation of the situation for the other divisions of mathematics as well.

TABLE XXXIV

PROPORTION OF TEACHERS WHO BELIEVE THAT NEEDS OF VARIOUS GROUPS OF STUDENTS ARE BEING WELL CARED FOR BY COURSES IN PLANE GEOMETRY

Groups	Percentage of Teachers Giving Answers Equivalent to "Well" or "Very Well"
Boys	80
Girls	50
Those preparing for college	85
Those preparing for trades	36

DISCIPLINE VERSUS CONTENT

The answers to the question, "Which do you regard as more important, the content of the course or the discipline?" appear in Table XXXV. The facts set forth here, as well as those presented under "Aims" above, go to show that, despite the recent

heated controversy as to the "transfer of training," a very large proportion of teachers of mathematics hold to the opinion of the pervasive nature of the training in their courses. Only in the case of trigonometry does content seem to be recognized as making the essential contribution to the educational value of the subject. Nevertheless, we cannot pass without notice the fact that with a far from negligible proportion of teachers content is elevated to the superior position, while another considerable proportion deems the two of equal value.

TABLE XXXV

OPINIONS OF TEACHERS ON RELATIVE VALUES OF CONTENT AND DISCIPLINE IN COURSES IN MATHEMATICS

Opinion	Number of Teachers of				
	Elementary Algebra	Plane Geometry	Advanced Algebra	Solid Geometry	Trigonometry
Content more important	30	16	9	2	7
Discipline more important	60	90	14	6	1
Content and discipline of equal importance	14	11	4	1	3
No answer	8	5	10	1	.....
Total number of responses to questionnaire	112	122	37	10	11

VI. SUMMARY

1. Elementary algebra is almost always a first-year high-school subject. Plane geometry is markedly a second-year subject, but is reported in some schools in the third year, or in the latter half of the second year and the first half of the third. Advanced algebra appears most commonly in the third and fourth years, but in a few schools in the second. Solid geometry appears in the third or fourth years and trigonometry in the fourth year.

2. Elementary algebra and plane geometry extend almost without exception through a full school year of 36 weeks or more. The three advanced courses named are almost always a half-year in length. Each week is usually constituted of five 40- or 45-minute periods. Some schools report periods of greater length.

3. Supervised study is reported in a few schools for elementary algebra or plane geometry, or both.

4. Most schools require two years of mathematics for graduation, while a small proportion each require none, two and one-half years, or three years. Still others vary the requirement with the high-school course taken.

5. Textbooks dominate content and organization of courses in mathematics.

6. There is no standard practice in the disposition of the class period as to recitation, study, teaching, and lesson assignment, except that a very large number of schools allow no class time, or a very small proportion of class time, for study.

7. The deductive, inductive, and analytic methods are most commonly used in class instruction.

8. Historical notes are introduced into courses in elementary algebra and plane geometry in somewhat more than half the schools and into the advanced courses in mathematics in approximately a third of the schools. They are reported as "humanizing," i.e., adding interest to, the work.

9. More than 60 per cent of the replies report efforts to correlate algebra and geometry. The values of such correlation are said to be: (1) making the subjects easier of comprehension, (2) teaching the unity of mathematics, and (3) increasing the interest in it.

10. Approximately 60 per cent of the replies report efforts to meet current criticisms of high-school mathematics. Such efforts are usually constituted of the introduction of "practical" problems, problems drawn from the vocations, or problems within the students' experiences.

11. The aims in the teaching of mathematics usually classify under (1) the development of a working knowledge of the subject, (2) preparation for subsequent academic work, (3) a stressing of the practical values, and (4) free play for the disciplinary values of the subject.

12. Except in the case of trigonometry, most teachers believe that the discipline of courses in mathematics is more valuable than the content. However, a considerable number of teachers place the content value on a level with or superior to the disciplinary value.

CHAPTER IV

SCIENCE

A. Sciences Other Than Agriculture

I. DISTRIBUTION OF RESPONSES TO THE INQUIRY

The distribution, by states, of the schools from which responses to the inquiry in the teaching of the various sciences have come is shown in Table XXXVI. The number of responses in physiology

TABLE XXXVI

DISTRIBUTION, BY STATES, OF THE SCHOOLS FROM WHICH RESPONSES TO THE INQUIRY IN THE VARIOUS COURSES IN SCIENCE HAVE COME

States	Number of Responses in								
	General Science	Physiography	Botany	Zoology	Biology	Physiology	Chemistry	Physics	Total
Colorado	.....	.....	.....	2	1	.....	4	5	12
Illinois	7	4	1	5	7	.....	17	21	62
Indiana	2	2	5	1	1	.....	9	11	31
Iowa	.....	2	2	.....	.....	.....	3	5	12
Kansas	3	.....	1	1	1	1	5	11	23
Michigan	.....	3	5	3	1	.....	9	11	32
Minnesota	.....	.....	2	1	2	.....	8	7	20
Missouri	.....	2	1	.....	.....	1	7	5	16
Montana	1	2	.....	.....	.....	.....	2	2	7
Nebraska	.....	.....	1	.....	1	.....	4	2	8
North Dakota	.....	.....	.....	1	1	.....	3	2	7
Ohio	4	3	2	.....	2	1	13	16	41
Oklahoma	.....	.....	.....	1	.....	.....	2	2	5
South Dakota	.....	3	2	1	.....	2	2	1	11
Wisconsin	2	2	5	.....	.....	.....	6	12	27
Total number of responses to questionnaire	19	23	27	16	17	5	94	113	314

is so small as to forbid drawing from them any far-reaching conclusions. As has been stated in chapter i, this small number is probably in large part attributable to the small holding this science has in high-school programs of study, and this in itself is due to the

opinions of the school authorities that it is not of sufficient educational value, either in itself or as it is usually taught, to justify a place for it in the programs. While the number of responses for some of the other sciences is not large, they are sufficient to constitute a fair sample or representation and to support such conclusions as are drawn from them.

II. THE OFFERING

YEARS IN WHICH SCIENCE COURSES APPEAR

The years in which the various high-school science courses appear are shown in Tables XXXVII and XXXVIII. In the former they are represented in gross numbers and in the latter in percentages of schools listing the subjects in the different years. From these tables the following facts are evident: (1) general science is almost always listed in first year; (2) physiography is most commonly a first-year subject, although in some schools it appears in the second year, and in a few in years beyond the second; (3) the biological sciences are more commonly reported for the second year, but are reported by some schools in the first year, and in a smaller proportion of schools beyond the second year; (4) chemistry is a third- or fourth-year subject with some preponderance of practice for the fourth year; (5) physics is also a third- and fourth-year subject, but in practice is more markedly a fourth-year subject than is chemistry.

RANGE OF YEARS IN WHICH STUDENTS MAY TAKE THE VARIOUS HIGH-SCHOOL SCIENCES

The facts just presented as to the years in which the study of the various high-school sciences appears do not tell all the truth as to their place in students' curricula. Some interesting and pertinent information as to the range of years during which a student may take the several sciences is to be found in the teachers' responses to the question, "From what other years may the student elect the subject?" These responses have been compiled and are reproduced in Table XXXIX. The method of compilation for the purposes of this table may be illustrated as follows: if, e.g., a teacher listed botany for the second year and stated that it might

also be elected in the third or the fourth year, the answer was classified as signifying that the student may take botany in any one of three years. Again, if physics was listed in the fourth year and the

TABLE XXXVII

NUMBER OF THE SCHOOLS IN WHICH THE HIGH-SCHOOL SCIENCES APPEAR IN THE VARIOUS YEARS

Year or Years in the High School	General Science	Physiography	Botany	Zoölogy	Biology	Physiology	Chemistry	Physics
1	17	15	5	2	4	1	.....	.....
1, 2	.....	1	4	1	1	.....	.....	.....
2	1	3	11	10	9	1	1	1
2, 3	1	.....	.....	.....	.....	.....	.....	.....
3	.....	1	6	2	1	.....	32	34
3, 4	.....	.....	.....	1	.....	1	19	11
4	.....	1	.....	.....	1	2	41	67
2, 3, 4	.....	.....	1	.....	.....	.....	.....	.....
1, 2, 3, 4	.....	1	.....	.....	.....	.....	.....	.....
2, 6	.....	.....	.....	.....	.....	.....	1	.....
No answer	.....	1	.....	.....	1	.....	.....	.....
Total number of responses to questionnaire	19	23	27	16	17	5	94	113

TABLE XXXVIII

PERCENTAGES OF THE SCHOOLS IN WHICH THE HIGH-SCHOOL SCIENCES APPEAR IN VARIOUS YEARS

Year or Years in the High School	General Science	Physiography	Botany	Zoölogy	Biology	Physiology	Chemistry	Physics
1	89.4	65.2	18.5	12.5	23.5	20.0	.....	.....
1, 2	.....	4.3	14.8	6.3	5.9	.....	.....	.....
2	5.3	13.0	40.7	62.5	52.9	20.0	1.1	0.9
2, 3	5.3	.....	.....	.....	.....	.....	.....	.....
3	.....	4.3	22.2	12.5	5.9	.....	33.9	30.1
3, 4	.....	.....	.....	6.3	.....	20.0	20.2	9.7
4	.....	4.3	.....	.....	5.9	40.0	43.5	59.3
2, 3, 4	.....	.....	3.7	.....	.....	.....	.....	.....
1, 2, 3, 4	.....	4.3	.....	.....	.....	.....	.....	.....
2, 6	.....	.....	.....	.....	.....	.....	1.1	.....
No answer	.....	4.3	.....	.....	5.9	.....	.....	.....
Total	100.0	99.7	99.9	100.1	100.0	100.0	99.8	100.0

teacher reported that the student might also take the subject in the third year, the answer was understood to signify that the student may take physics in that school in either of two years. From the

table it will be seen that the sciences more commonly listed in the earlier years, i.e., general science, physiography, and the biological sciences, are elective over a wide range of high-school years in a large proportion of schools. That is to say, although listed as courses for students in the earlier years, they are open to students from the later years of the high school. In other words, advanced students may elect courses in science that are manifestly intended

TABLE XXXIX

RANGE OF YEARS IN WHICH STUDENTS MAY TAKE THE VARIOUS HIGH-SCHOOL SCIENCES

Range of Years in Which Course May Be Taken	Courses							
	General Science	Physiography	Botany	Zoölogy	Biology	Physiology	Chemistry	Physics
In one year only	4	10	4	2	.....	1	17	30
In either of two years	6	3	5	4	2	4	63	74
In any one of three years	3	1	8	7	6	.....	7	.....
In any high-school year	5	7	8	2	8	.....	.....	.....
No answer	1	2	2	1	1	.....	7	9
Total	19	23	27	16	17	5	94	113

by their listed place to be elementary in nature and appropriate to the mental capacity of students in the earlier years. On the other hand, the table indicates that chemistry and physics are not open to the students in a wide range of years. When with this fact is coupled the further one that in only 10 and 4 schools, respectively, may students elect chemistry and physics in the second year of the high school, we may conclude that these sciences are almost exclusively conceived of as advanced courses.

THE TIME ELEMENT

Length of the courses.—The length of the several science courses is shown in Table XL. This table indicates that, with the exception of physiology, the courses are most commonly a full year in length. Biology, chemistry, and physics never extend through less than a full school year. General science, physiography, botany, and zoölogy are reported as half-year courses in some schools, while the first two named extend in a very few schools through as little as

a third of the school year. The offering in chemistry and physics in a few schools extends through one and one-half or more years.

Recitation time per week.—The amount of time devoted to recitation by the schools reporting on the teaching of all the high-school courses in science excepting general science is to be found in Table XLI. The facts concerning class time in general science appear later in this chapter. The table indicates that the time spent in recitation in all courses ranges between wide extremes. For instance, in physiography, these extremes are 0 and 225–249 minutes, while in physics they are 100–124 and 250–274 minutes.

TABLE XL

LENGTH OF SCIENCE COURSES

Length of Course	General Science	Physiography	Botany	Zoölogy	Biology	Physiology	Chemistry	Physics
½ year	1	2	.....	.....	.....	.....	.....	.....
¾ year	2	6	7	6	.....	3	.....	.....
1 year	16	14	18	10	17	2	89	110
1½ years	.....	.....	.....	.....	.....	.....	3	2
2 years	.....	.....	.....	.....	.....	.....	1	.....
Other lengths of time	.....	.....	2*	.....	.....	.....	1†	.....
No answer	.....	1	.....	.....	.....	.....	.....	1
Total number of responses to questionnaire	19	23	27	16	17	5	94	113

* In one school each, 24 and 28 weeks.

† Three years, "second year for domestic science girls; third year, regular high-school course; fourth year for engineers and college credit (advanced standing)."

The modal practices are fairly well marked in zoölogy, biology, chemistry, and physics. The more common practices are: physiography, 200–224 and 225–249 minutes; botany, 100–124 and 125–149 (usually 120 and 135) minutes; zoölogy, 125–149 (usually 135) minutes; biology, 125–149 and 150–174 (usually 135 and 160) minutes; chemistry, 100–124 and 125–149 (usually 120 and 135) minutes; physics, 100–124 and 125–149 (usually 120 and 135) minutes.

Since the length of class periods in high schools is very commonly 40 or 45 minutes, the modal practices just presented indicate that, with the exceptions of physiography, in which more time is given over to recitation, and in biology, where one of the modal

practices is 150–174 minutes, the modal recitation time in the sciences extends through three 40- or 45-minute periods. This is

TABLE XLI

TIME DEVOTED TO RECITATION IN COURSES IN SCIENCE

Recitation Time in Minutes	Physiography	Botany	Zoölogy	Biology	Physiology	Chemistry	Physics
0	1	.....	.....	.....	.....	.....	.....
50– 74	.....	.....	1	.....	.....	.....	.....
75– 99	.....	4	1	1	.....	3	2
100–124	4	7	3	1	.....	25	28
125–149	2	6	5	6	2	44	42
150–174	1	1	2	5	.....	7	5
175–199	1	2	.....	2	1	5	16
200–224	5	4	.....	1	1	6	7
225–249	8	3	1	1	1	3	10
250–324	.....	.....	.....	.....	.....	1	1
Not answering or giving indefinite answers	1	.....	3	.....	.....	.....	2
Total number of responses to questionnaire	23	27	16	17	5	94	113

in accord with what appears in Table XLII, which presents the number of recitation periods per week in the several courses in

TABLE XLII

NUMBER OF RECITATION PERIODS PER WEEK IN COURSES IN SCIENCE

Recitation Periods per Week	Physiography	Botany	Zoölogy	Biology	Physiology	Chemistry	Physics
0	1	.....	.....	.....	.....	.....	.....
1	.....	.....	1	.....	.....	.....	.....
2	.....	5	1	1	.....	3	3
2½	.....	1	.....	.....	.....	3	1
3	7	13	9	10	3	75	71
3½	.....	.....	1	2	.....	2	1
4	2	.....	.....	3	.....	3	20
5	13	8	1	1	2	7	16
7	.....	.....	.....	.....	.....	1	1
No answer or no definite answer	.....	.....	3	.....	.....	.....	.....
Total number of responses to questionnaire	23	27	16	17	5	94	113

science and shows that the modal practice in number of recitation periods is three, except for physiography, where it is five.

Laboratory time per week.—The amount of time devoted to laboratory work in the schools reporting on the teaching of all the several courses in science, excepting general science, is to be found in Table XLIII. It is seen that the time spent in laboratory

TABLE XLIII

TIME DEVOTED TO LABORATORY IN COURSES IN SCIENCE

Laboratory Time in Minutes	Physiography	Botany	Zoölogy	Biology	Physiology	Chemistry	Physics
0	7	.....	.....	1	2	.....	.....
25– 49	1	.....	.....	1	.....	.....	1
50– 74	2	.....	.....	1	.....	.....	.....
75– 99	3	7	2	2	.....	5	21
100–124	2	1	.....	1	.....	7	7
125–149	1	1	1	.....	2	3	5
150–174	.....	4	4	2	.....	24	32
175–199	1	4	5	6	1	34	34
200–224	.....	1	1	.....	.....	9	2
225–249	1	3	3	1	.....	2	6
250–274	.....	2	.....	.....	.....	8	2
275–299	.....	.....	.....	.....	.....	.....	.....
300–324	1	.....	.....	.....	.....	.....	1
325–349	.....	.....	.....	1	.....	.....	.....
350–374	.....	1	.....	.....	.....	.....	1
400–424	.....	1	.....	.....	.....	.....	.....
No answer or answer indefinite	4	2	.....	1	.....	2	1
Total number of responses to questionnaire	23	27	16	17	5	94	113

ranges between very wide extremes. A comparison of this table with Table XLI brings out the fact that the range is greater for laboratory than for recitation time. The more common practices are seen to be: physiography, no laboratory time; botany, 75–99 (usually 80 or 90), 150–174 and 175–199 (usually 160 or 180) minutes; zoölogy, 150–174 and 175–199 (usually 160 and 180) minutes; biology, 175–199 (usually 180) minutes; chemistry, 150–174 and 175–199 (usually 160 and 180) minutes; physics, 150–174 and 175–199 (usually 160 and 180) minutes.

Since the lengths of laboratory periods in high schools are very commonly 80 or 90 minutes, the modal practices just presented indicate that, with the exceptions of physiography, where the modal practice is no laboratory time, and botany, where one of the modes is 75–99 minutes, the modal laboratory time in the sciences extends

through two 80- or 90-minute periods. This is in accord with what appears in Table XLIV, which presents the number of recitation periods per week in the several courses and shows that the modal practice in the number of laboratory periods is two, except for physiography, where it is zero. Physiography is thus seen to be taught in a large proportion of schools in disregard of current recognition of laboratory work in the sciences.

TABLE XLIV

NUMBER OF LABORATORY PERIODS PER WEEK IN COURSES IN SCIENCE

Laboratory Periods per Week	Physiography	Botany	Zoölogy	Biology	Physiology	Chemistry	Physics
0	7	.....	.....	1	2	.....	.....
1	2	.....	.....	1	.....	3	19
1½	1	.....	1	2	.....	1	2
2	5	15	11	8	2	61	62
2½	.....	.....	.....	.....	.....	8	2
3	2	5*	.....	1	1	7	6
3½	.....	.....	.....	.....	.....	.....	.....
4	1	3	2	2	.....	8	11
5	1	2	1	.....	.....	2	7
6	.....	1	1	1	.....	3†	2
No answer or no definite answer	4	1	.....	1	.....	1	2
Total number of responses to questionnaires	23	27	16	17	5	94	113

* One reports "3 or 4." † One reports "6 or 7."

Total time per week.—The total time per week devoted to courses in science is shown in Table XLV. One of the striking facts discovered by this table is the wide range in the total weekly allotment of time in these courses. For instance, in physics there is a range of from 150–174 (actually 160) minutes to 500–524 (actually 505) minutes, which means that three times as great a time allotment is made in the school reporting the latter as in the school reporting the former. The range is seen to be as great or almost as great in most of the other sciences.

The modal allotments of time per week for the several sciences with the exception of physiology are seen in the table to be as follows: general science, 225–249 (usually 225) minutes; physiography, 225–249 (usually 225) minutes; botany, 275–299 and 300–324 (usually 280 and 315) minutes; zoölogy, 300–324 (usually 315)

minutes; biology, 300–324 (usually 315) minutes; chemistry, 275–299 and 300–324 (usually 280 and 315) minutes; physics, 275–299 and 300–324 (usually 280 and 315) minutes.

Since high-school class periods are usually 40 or 45 minutes in length, this corresponds to the facts that the more common time allotment per week for the first two sciences in this list includes five 45-minute periods, while for the remaining sciences it includes

TABLE XLV

THE TOTAL CLASS TIME PER WEEK IN SCIENCE COURSES

Minutes per Week	General Science	Physiography	Botany	Zoölogy	Biology	Physiology	Chemistry	Physics
100–124	2	1	.....	.....	.....	.....	.....	.....
125–149	.....	.....	.....	.....	.....	.....	.....	.....
150–174	.....	.....	.....	.....	.....	.....	.....	1
175–199	.....	.....	1	.....	.....	.....	.....	.....
200–224	2	4	3	1	3	2	3	3
225–249	8	7	2	1	1	1	3	5
250–274	.....	1	.....	1	.....	.....	3	12
275–299	2	1	5	3	1	.....	22	26
300–324	2	4	8	7	7	1	38	39
325–349	1	.....	1	.....	.....	1	4	5
350–374	2	.....	1	.....	.....	.....	8	10
375–399	.....	.....	1	1	.....	.....	1	.....
400–424	.....	2*	1*	.....	1*	.....	6†	3
425–449	.....	.....	.....	.....	.....	.....	2	.....
450–474	.....	1*	1	.....	.....	.....	1*	5†
475–499	.....	.....	1*	.....	1*	.....	.....	1
500–524	.....	.....	.....	.....	.....	.....	1*	1*
No answer or answer not usable	.....	2	2	2	3	.....	2	2
Total number of responses to questionnaire	19	23	27	16	17	5	94	113

* Includes time for supervised study.

† Reported in two cases as providing time for supervised study.

seven 40- or 45-minute periods or, as has already been shown, three 40- or 45-minute recitation periods and two 80- or 90-minute laboratory periods. This means (1) that the two sciences that in practice are distinctly first-year subjects usually have a smaller total amount of time devoted to them than the courses more commonly appearing later, and (2) that this time allotment is equivalent to that which is almost universal in such academic courses as are constituted in no part of work in a laboratory. However, the

practice of making a time allotment per week of five 40- or 45-minute periods, i.e., total time allotments of 200 and 225 minutes, respectively, is not limited to these earlier sciences, as it appears also, although proportionately less frequently, in subsequent courses.

Special inquiry was made into the matter of time allotment per week in general science. It was found that in but 6 of the 19 schools from which reports have come are separate periods provided for recitation and laboratory work, the recitation and laboratory work in the remaining schools both finding place within the same period. In one of the 6 schools reporting separate periods they are provided during the second half of the course, while in another the teacher reported that there was "no set rule," the nature of the work in hand determining this period arrangement from day to day. In the remaining 4 schools the total weekly time allotment is three single recitation periods and two double laboratory periods. Thus, although laboratory work is reported by all teachers of general science, it is the usual practice to include it with the recitation within the same class period.

Table XLV shows that some schools make considerably more than the modal allotment of time. Although this practice appears in all the sciences, it is more common with chemistry and physics.

As indicated by the footnotes to the table, a number of schools report that they provide time for supervised study. The time alloted ranges from 15 minutes in a few schools to a full 60-minute period on recitation days in a few others. As this information is volunteered by the teachers, it is probable that if investigation had been made it would have been found that a larger proportion are following this practice.

III. ORGANIZATION OF THE COURSES

DEVIATIONS FROM PLANS OF TEXTS USED

The teachers were asked to report important deviations they make in their courses from the plans of the texts or the syllabi used. In discussing the responses to this question it should first be mentioned that the proportion of teachers reporting the use of syllabi

in addition to the textbooks is so small, and that when they are reported they are so frequently syllabi prepared by authors to accompany their textbooks, that they may be all but disregarded in the bearing they may have in the matter of course organization. A few reporting the use of syllabi name outlines prepared by state authorities. Thus it is the deviations which the teachers report that they make from the plans of the texts and not the syllabi used that really concern us here in the question of the organization of courses in science.

The facts as to such deviations have been classified as far as feasible and are presented in Table XLVI. A large proportion of

TABLE XLVI

DEVIATIONS FROM THE PLANS OF THE TEXTS USED IN COURSES IN SCIENCE

Kind of Deviations*	Number of Schools							
	General Science	Physiography	Botany	Zoölogy	Biology	Physiology	Chemistry	Physics
None	5	5	3	3	4	1	18	29
Omissions	3	3	3	2	2	2	5	9
Additions	6	7	2	4	5	2	25	13
Changes of order	1	1	9	2	3	.....	9	19
Others	3	3	4	2	1	.....	18	14
Not answering	5	5	8	4	6	.....	21	38
Total number of responses to questionnaire	19	23	27	16	17	5	94	113

* As some teachers report more than a single type of deviation the addition of the number appearing under the several rubrics will be found, except in the case of physiography, to show an excess over the total number of responses to the questionnaire.

teachers have reported that they make no important deviations from the plan of the text. To these we may add the even larger proportion who make no answer to the question. The classifications made of the deviations reported include omissions, additions, changes of order, and other deviations, among the last-named being counted those kinds of deviation of which relatively small numbers appear.

It is needless for the purposes of this chapter to reproduce here all the deviations which all the teachers report for the several courses in science. The responses for all the sciences will be illustrated

by those that were made by the teachers of chemistry, the course in which there seemed to be the largest proportion of most significant departures from the plan of the text. Eighteen of the teachers of chemistry report that they make no such deviations. To these we may add, on account of the almost universal practice of the teachers to answer conscientiously all questions in the inquiry blank, the 21 others who make no answer to this question. We have classified 5 of the deviations reported as omissions, 25 as additions, 9 as changes of order, and have left 18 responses unclassified. Under "Omissions" have been placed such answers as: "abbreviation" of some parts of the text, "omit gas laws," "do not plan to cover as much ground," and "portions omitted"; under "Additions": "additions in theory," "include some practical work" (this or a similar answer, e.g., "some chemistry of cooking," "some pure food work," "food and water analysis," etc., are made by 17 teachers), reading of magazines to follow recent contributions to the text, "introduce lecture-room experiments—quantitative experiments— special themes and problems," "four weeks of qualitative analysis" at end of year, "civic aspects" given attention, etc.; under "Changes of order": "valence later," "change order widely," "slight change in sequence," "put naming of equation, problems, valence very early," "take up molecular and atomic theory earlier"; under deviations designated as "Others": "third quarter given over to domestic science and analysis," "adapt experiments to fit equipment and conditions," "much written work," "last half-year text used for reference only," etc. When one recalls that a very large proportion of the teachers of chemistry report no deviations whatever and when one bears in mind that the deviations just quoted are representative of those reported, he is not long in coming to the conclusion that relatively few *important* deviations from the plans of the texts used are made by teachers of chemistry. That is to say, the textbooks used determine in all but a small proportion of schools the organization of the courses in chemistry. If we now revert to the statement made above that chemistry is here being used to illustrate the extent of deviation because it is the course in science in which there seemed to be the largest proportion of most significant departures, it may be said that not only in courses in

chemistry, but in all science courses here under consideration, does the textbook determine the organization in all but a small proportion of schools.

ORGANIZATION OF THE COURSE IN GENERAL SCIENCE

Twelve of the 19 teachers reporting on the organization of courses in general science signify that these consist of brief elementary treatments of various sciences. The sciences so used and the number of teachers reporting them are as follows:

Physics	12	Botany	8
Chemistry	12	Zoölogy	6
Physiography	8	Astronomy	5
Physiology	8	Hygiene	1

The remaining 7 teachers signify that their courses consist of topics each of which may use materials from several sciences. This distinction is no doubt reflected in the organization and content of the textbooks used, since what has been presented above under the head of "Deviations from the Plan of the Text Used" points to a general procedure of following, without important departures, the plan of the text.

THE COURSE IN BIOLOGY

The courses in biology seem to range between two extremes of type: (*a*) one in which the course is constituted of two distinct parts, one of zoölogy and the other of botany, and (*b*) one in which the course recognizes no such division and is taught as a coherent whole. To the former belong those half-dozen schools in which the teachers report that a certain number of weeks, usually a half-year, is devoted to one subject and the remainder of the year to the other. One of this group reports 12 weeks each devoted to biology, botany, and human physiology. In these schools two textbooks are reported, one for each division of the full course. To the latter extreme belong those 7 schools that report no division of time and that also report the use of a single textbook in general biology. Most of the 4 remaining schools probably follow a practice between these two extremes, since they report the use of separate texts, as

is done by those of the former group, while at the same time, in common with the latter group, they report no division of time.

IV. METHODS

THE PLACE OF PRACTICAL ILLUSTRATIONS

The responses to the question as to the place of practical illustrations, i.e., as to whether they precede, accompany, or follow the development of the principle involved, do not represent any clearly defined tendency. It would be unprofitable to reproduce here the practices reported by all the teachers of all the science courses. But to illustrate the diversity of practice a classification of the answers made by the teachers of physics will be presented here, inasmuch as this science has been the seat of much of the academic war that has been waged about this particular question of method, and because the proportions of the practices are fairly representative of those in other sciences. It is significant that a large proportion

Practice Reported	Number of Teachers
Precede	16 (6 say "generally")
Accompany	33 (5 say "generally")
Follow	12 (2 say "generally")
Precede or accompany	8
(1) Precede *and* follow or (2) Precede *or* follow	4
(1) Accompany *and* follow or (2) Accompany *or* follow	16
Various	16
Total number answering the question	105

are not satisfied with the use of any one method. Those practices enumerated under the last category may be illustrated by the following quotations: "vary," "depends upon the subject," "no set method," "sometimes one and sometimes another," "no general method—applications prompt variation," "no rule can be given—depends upon the principle," and "all three."

The reasons given for following the respective practices do not, in general, make a conclusive appeal. Some of these reasons appear under all or nearly all the practices reported, as, for instance,

"stimulates interest," "better results," "gives an insight into principles," etc. Some of the more pertinent answers are quoted here. Some of the teachers who precede the development of the principle by practical illustrations say: "inductive method generally clearest," "pupils are practically unanimous that they understand better that way," and "makes the general statement concrete and obvious." Some of those who report the practice of having the illustrations accompany the development of the principle argue: "enrich classroom discussion," "basis in judgment from common experience," "the principle involved is illustrated and developed," "our supervised study plan makes this possible." A few who have the illustrations follow say: "study the principle, then apply it," "students would not get proper benefit from application if they had not first studied the principles," "some experiments are better deduced than induced." One who reports that he accompanies and follows the development of the principle with the illustration says, "accompany to make vital, follow to clinch," while another argues, "some better suited to accompany, some to follow." One who reports that he precedes or accompanies the development with the illustration says that this method "stimulates independent thinking." Of those who have the illustration precede and follow, two say, "familiar illustrations introduce more complicated ones follow."

RELATING THE SCIENCES TO PROBLEMS OF ENVIRONMENT

One important aspect of the method of teaching the sciences is that of relating the subject to problems of environment, such as those of agriculture, domestic science, industry, etc. The extent to which teachers are utilizing this method is shown later under the head of "Aims and Purposes." The practice is mentioned here because of its pertinency and to call attention to the fact that the validity of this method is generously recognized by teachers of science.

FIELD TRIPS

Field or observation trips are being utilized by a very large proportion of teachers in all science courses, as may be seen in Table XLVII. To the very small proportion of teachers reporting

definitely that field trips do not find a place in their courses may be added a somewhat larger number who do not answer the question. These trips are practically universal in physiography and the biological sciences, but somewhat less common in other courses.

TABLE XLVII

NUMBER OF TEACHERS REPORTING FIELD TRIPS IN COURSES IN SCIENCE

Response	General Science	Physiography	Botany	Zoölogy	Biology	Physiology	Chemistry	Physics
Reporting field trips.....	13	18	25	13	16	3	57	61
Reporting "None".....	1	1	1	1	.....	2	12	27
Not answering.....	5	4	1	2	1	.....	25	25
Total number of responses to questionnaire.....	19	23	27	16	17	5	94	113

The number of field trips and their time-length range between wide extremes. A fair representation of the practices prevailing as to number in all the sciences may be indicated by the following practices as reported by teachers of physics: 4 report 1 or "1 or more"; 9 report 2, "2 or 3," or "2 to 4"; 25 report 3, "3 or more," "3 or 4," 4, 5, or "3 to 6"; 11 report 6 or "about 6"; 1 reports "about 10"; 10 report "few" or "no definite number." The general practice may here be seen to range between 2 and 6 trips. The time-length of field trips ranges from a half-hour to "all day," but most of the trips are covered in from 1 to 3 hours.

DISTINCTIVE FEATURES

Teachers were asked to describe briefly any other distinctive features of their courses in science. Those that are considered of sufficient importance are quoted here.

General science.—One school lays special stress on civic duties, moral and social obligations. One makes extensive use of state and government documents, advertising matter, blueprints, magazine articles, and material from sources which the pupil will use after he finishes the course. This school also shows a preference for simple homemade apparatus for performing experiments. One school assigns project work according to the special interests of the

individual pupils. One encourages and directs home experimenting. Another makes much use of its lantern-slide demonstration of physiography. Another specializes in botany in the spring with 3 or 4 field trips a week.

Physiography.—One school reports a thorough study of the features of the vicinity. One correlates the work with botany, especially on field trips. One reports that after 22 to 24 weeks have been devoted to physiography the remainder of the year is given over to commercial geography. Another lays emphasis on field trips and practical applications.

Botany.—One teacher says that many voluntary projects are carried on and reported by students. One says that pupils supply all the living material for the classroom. One emphasizes garden-making, raising of mushrooms, and the beautifying of home premises. One reports the use of a hothouse and lantern slides. Another says that economic plants are mainly chosen for study types.

Zoölogy.—One teacher says that human anatomy and physiology are compared with that of the lower animals. One reports a spring course in bird-study, while another reports emphasis on insects and birds. One teaches taxidermy.

Biology.—One teacher introduces lectures in Agassiz, Baird, Darwin, Pasteur, Linnaeus, and Fabre. One says that students are required to make collections of insects, leaves, seeds, etc. One reports practical investigation of milk, water supply, etc.

Physiology.—The few features here reported as distinctive do not merit quotation.

Chemistry.—Five schools report some sort of differentiation of the work for boys and girls. One of these mentions courses in home-economics chemistry for girls, and in mechanic-arts chemistry for boys, in addition to the regular mixed class in "academic" chemistry. In another of these schools the boys and girls are placed in separate classes during the second semester. In the 3 other of these 5 schools the differentiation is made in the laboratory work. One teacher refers to the use of federal and state bulletins. Another says: "The boys of the advanced class are appointed city inspectors of milk, water, and the dairies . . . . are in fact city officers, but

serve without pay." One reports a science club working along civic lines. Another makes amateur photography a part of the course.

Physics.—In physics also there is differentiation for boys and girls. In one school separate classes are provided, and in two others the differentiation takes place in the laboratory. One teacher reports that laboratory apparatus, as far as possible, is made by boys in manual training. One reports demonstrations or discussions in literary programs.

V. AIMS AND PURPOSES

The following aims in science were listed in the inquiry blank, and the teachers were asked to check those in which they concur: (*a*) to present a comprehensive and unified organization of the subject; (*b*) to develop the particular quality of intellectual training which this subject makes possible; and (*c*) to relate the subject to problems of environment, such as those of agriculture, domestic science, industry, etc. The extent to which the teachers of the several courses in science have signified their assent to these aims is shown in Table XLVIII.

TABLE XLVIII

NUMBER OF TEACHERS CONCURRING IN THE AIMS IN SCIENCE TEACHING LISTED IN THE QUESTIONNAIRE

Aim	General Science	Physiography	Botany	Zoology	Biology	Physiology	Chemistry	Physics	Total
(*a*)	8	13	13	9	10	5	65	94	217
(*b*)	10	19	20	9	8	3	66	95	230
(*c*)	14	17	19	12	15	4	74	78	233
Total number of responses to questionnaire	19	23	27	16	17	5	94	113	314

In order better to bring out the significance of the facts, the percentages corresponding to the gross numbers appearing in this table have been computed and are presented in Table XLIX. In this table it will be seen that the proportion of teachers concurring in these aims fluctuates considerably from course to course, but

there is less fluctuation for aim (*c*) than for (*a*) and (*b*), the proportion of concurrence in this aim being high throughout. The proportion of the total number of teachers of all the courses in science seems to be approximately the same, although there is a

TABLE XLIX

PERCENTAGES OF THE TEACHERS CONCURRING IN THE AIMS IN SCIENCE TEACHING LISTED IN THE QUESTIONNAIRE

Aim	General Science	Physiography	Botany	Zoölogy	Biology	Physiology	Chemistry	Physics	Total
(*a*).....	42.1	56.5	48.1	56.3	58.8	100.0	69.2	83.2	69.1
(*b*).....	52.6	82.6	74.1	56.3	47.1	60.0	70.3	84.1	73.3
(*c*).....	73.7	73.9	70.4	75.0	88.2	80.0	78.7	65.5	74.2

slight tendency to increase assent as we proceed from aim (*a*) to aim (*c*). This would be more marked were we to include with those concurring in aim (*c*), as we are probably justified in doing, those teachers who, although they did not signify assent to it by checking, gave a reason for relating the subject to problems of environment, such as agriculture, domestic science, industry, etc. The number of teachers so responding is as follows: physiography, 3; botany, 4; zoölogy, 1; biology, 2; chemistry, 10; and physics, 17. Including these in the computation of the percentages of teachers concurring in this aim raises these percentages to the following: physiography, 86.9; botany, 85.2; zoölogy, 81.3; biology, 100.0; chemistry, 89.4; and physics, 84.1. The 37 schools thus added to the total of all teachers concurring in this aim raises the percentage of the total of all teachers of all science courses to 85.9, making this aim easily the most common of the three listed.

It is of some significance that a few of the teachers signifying assent to aim (*a*) qualify by erasing the word "comprehensive" or by appending this statement: "as far as possible." A few who do not assent volunteer the information that this aim is "hardly possible in a course for high-school students."

THE PARTICULAR TRAINING THE STUDY OF THE SCIENCES MAKES POSSIBLE

The teachers signifying concurrence in aim (*b*), "to develop the particular quality of intellectual training which this subject makes

possible," were asked to state what they consider this particular training to be. The general trend of the responses will be illustrated here by those made by teachers of chemistry, and these responses may be taken to be fairly representative of the other sciences (see Table L). Although the answers almost forbid classification, a rough grouping is here made. It should be understood that some teachers named as many as two or three types of training, while a larger number failed to set down any. It will be seen at once that, with the exception of the last six categories, these answers may all be comprehended under the head of the disciplinary values of science—the pervasive nature of the training received

TABLE L

NUMBER OF TEACHERS REPORTING EACH OF SEVERAL TYPES OF TRAINING THEY BELIEVE THE STUDY OF CHEMISTRY GIVES

Response	Number of Teachers
"Powers" or "habits" of observation	32
Inductive, deductive, or "independent" reasoning	18
"Logical," "abstract," or "independent" thinking	13
Scientific habit of thought	12
Accuracy	9
Carefulness	3
Initiative	2
Patience	2
Honesty	2
Value of self-elimination	2
Accurate and clear statements (English)	6
Practical value	4
Preparation for college	2
Preparation for vocational work	2
"Manipulation"	2
"Information"	1

by the student. For the most part they are couched in phrases so long current in the statement of aims in the teaching of science and other subjects that they have by now almost become cant and are rather generally without definite significance in the minds of the teachers reporting. Very few teachers signify that they have ever questioned the pervasive nature of this training, as does one teacher

of chemistry who reports that the particular training is the scientific habit of thought and says: "While aware that it is probably true that training of a particular type cannot be transferred for use in other types of situations, I am convinced that this principle is not so narrow as to apply only to subject-matter. The scientific method of attack upon problems . . . . is applicable in a host of situations which the pupil will encounter in after-life. . . . ."

FURTHER AIMS IN GENERAL SCIENCE

Two additional aims were listed in the questionnaire in general science: (*d*) to enable pupils to discover a vocation to which their interest and abilities are adapted, and (*e*) to lay a substantial foundation for subsequent courses in science offered in the high school. Nine teachers, or 47.4 per cent, concur in the former and 12, or 73.2 per cent, in the latter.

"OTHER DEFINITE" AIMS

Large proportions of teachers did not respond to the request to state any other definite aims than those listed in the inquiry blank in their modes of handling their subject. The numbers of such failures to respond and the ratio of these to the number of responses to the questionnaires in the several sciences are: general science, 10, or 52.6 per cent; physiography, 11, or 47.8 per cent; botany 5, or 18.5 per cent; zoölogy, 8, or 50 per cent; biology, 4, or 23.5 per cent; chemistry, 44, or 46.8 per cent; and physics, 60, or 53.1 per cent. In view of the generally conscientious manner in which teachers have filled out the questionnaires, we cannot be far wrong in concluding that these teachers are satisfied with the aims as listed in the inquiry.

Scrutiny of the other aims set down by the teachers in response to this request discovers that, with few exceptions, they are such as have already been included in the statements above. However, those few recommending themselves as most significant and to the least extent already covered by such aims as have already been stated will be quoted here. One teacher of general science reports the aims to give the student an intelligent concern for personal and

civic health. A teacher of physiography aims to correlate the work with other high-school subjects of study. The following aims in botany are reported once each: "to give practical instructions in gardening, beautifying home premises, to enlist an appreciation and support of movements for improving the environment"; "to give a view of the evolution of plant-life"; "to make the student understand the life of the plant." One teacher of zoölogy says, "to study the functions of internal organs and compare the functions with those of the human body," and another says, "to prepare the class for the course in physiology." Teachers of biology report the following: "to relate the subject to problems of health and the elimination of preventable diseases"; "to learn more about our own body through a study of all living things"; "to teach evolution." Teachers of physiology give these additional aims: "the observance of hygienic laws from a well-grounded knowledge of their basis; to train citizens who will fight for needed sanitary regulations"; "to take care of the body principally." A few teachers of chemistry say: "to arouse a desire for further study." One teacher reports the use of the course in physics for purposes of vocational guidance.

VI. SUMMARY

1. *a*) The following are the courses in science appearing in high-school programs of study: general science, physiography, botany, zoölogy, biology, physiology, chemistry, and physics. General science and physiography are most commonly first-year subjects. Botany, zoölogy, and biology are more commonly second-year subjects, but sometimes appear in other years. Chemistry and physics are both third- and fourth-year subjects, both of them appearing more frequently in the latter than in the former year. However, physics is in practice more distinctly a fourth-year subject than is chemistry.

b) Although the courses in general science, physiography, botany, zoölogy, and biology are listed for particular years, a large number of schools permit their election over a wide range of years, so that students from the advanced years of the high school may take courses that are specifically intended to be elementary in

character. Chemistry and physics are almost exclusively conceived as advanced courses and are open in few schools to students below the third year of the high school.

2. *a*) Science courses are more commonly a school year in length. Courses in general science, physiography, the biological sciences, and physiology are sometimes a half-year in length, the two exceptions first named extending through a third of a year in a very few schools. The offering in chemistry and physics in a few schools extends through more than a year.

b) The modal class time in all the sciences excepting general science and physiography is 280 or 315 minutes, allowing for three 40- or 45-minute periods for recitation and two 80- or 90-minute periods for laboratory. For the sciences named as exceptions the modal time allotment is 225 minutes, or five 45-minute periods. In physiography the modal practice is to provide no laboratory time or work, and on this account this course is open to the charge of being an "arm-chair" science, whereas in general science in most schools the laboratory work is provided for in the recitation period. Many schools, of course, provide for less or more time than the modal practice reported here.

c) A number of schools report provision of time for supervised study.

3. *a*) With no great extent of exceptions the organization of the courses in science is determined by the textbooks used.

b) General-science courses consist either of brief elementary treatments of the various sciences or of topics each of which may use materials from several sciences.

c) The courses in biology range in organization from two separate courses, one in zoölogy and the other in botany, to a single coherent course in general biology.

4. *a*) There is no agreement as to the proper place of practical illustrations, i.e., as to whether these should precede, accompany, or follow the development of the principle involved. Many teachers follow two or all of the practices.

5. Field trips are a constituent of most courses in science.

6. There is fair unanimity of opinion as to the aims that should dominate courses in science.

B. Agriculture

I. DISTRIBUTION OF RESPONSES TO THE INQUIRY IN AGRICULTURE

The responses to the inquiry into the status of the teaching of agriculture were received from 49 schools distributed as follows:

State	Number of Schools
Colorado	1
Illinois	5
Indiana	1
Iowa	3
Kansas	6
Michigan	6
Minnesota	10
Missouri	6
Montana	2
Nebraska	3
North Dakota	2
South Dakota	2
Wisconsin	2
Total	49

II. THE OFFERING IN AGRICULTURE

THE EXTENT OF THE OFFERING

The inquiry in agriculture was so framed as to learn the status of the teaching of both general agriculture and specialized courses in the subject. A course in general agriculture appears in 26 of the 49 schools, while specialized courses are reported by 31 schools. The offering in 8 schools includes both general agriculture and specialized courses in the subject, but in only 3 of these is the course in the former a part of the sequence in agriculture extending through two or more years.

The specialized courses appearing are farm crops, animal husbandry, soils, horticulture, farm accounts, farm mechanics, and farm management. The last two appear sometimes as separate courses and sometimes as constituents of the same course. The courses classified here do not always bear the names we have given them. The courses to which we have given the name farm crops are frequently reported as agronomy or field crops. Under

the single rubric animal husbandry have been included two courses named specifically dairy husbandry and three others reported as animal husbandry and dairying. Soils is in a few instances reported as soils and fertilizers or soils and soil fertility. Under horticulture have been listed courses given that name as well as those reported as vegetable gardening, fruit-raising, or vegetable gardening and fruit-raising. Farm mechanics is sometimes reported as agricultural engineering, and farm accounts as farm bookkeeping.

The amounts of this specialized work, exclusive of botany (or botany and zoölogy or botany and general science) which appears in the sequence of 5 schools, are as follows:

Number of Years	Number of Schools
1	5
2	4
3	11
4	11

These facts indicate that in those schools which offer specialized sequences the general practice is to extend them through three or four years.

YEARS OF APPEARANCE

The years in which the course in general agriculture appears were not investigated. In the three schools in which this course is reported as a part of the sequence of two or more years of agriculture, it is reported in the first year of the high school. However, the years in which specialized courses in agriculture appear were investigated. Table LI shows the results of the compilation of the facts. Farm crops is here seen to be most markedly a first-year course, although it appears in other years in some schools. Animal husbandry is similarly predominantly a second-year course. Soils and horticulture do not seem to gravitate toward any single year of the high school. Farm mechanics and farm management are third- and fourth-year subjects and, when all the figures for them as separate and as a single subject are taken into consideration, practice tends to recommend them predominantly for the latter. Farm accounts appears in third and fourth years. The agricultural sequence recommended by practice seems to be this: first year, farm crops; second year, animal husbandry; third year, soils

(one-half) and horticulture (one-half); fourth year, farm mechanics and farm management. Soils and horticulture are placed in third year, not because practice recommends them for this par-

TABLE LI

NUMBER OF SCHOOLS REPORTING THE SEVERAL YEARS IN WHICH SPECIALIZED COURSES IN AGRICULTURE APPEAR

Year of Appearance	Farm Crops	Animal Husbandry	Soils	Horticulture	Farm Mechanics	Farm Management	Farm Mechanics and Farm Management	Farm Accounts
1	16	2	1	3	.....	.....	.....	.....
2	9	19	4	4	.....	.....	.....	.....
3	2	9	4	3	4	4	2	2
4	.....	.....	4	2	2	5	8	2
Year not stated	.....	.....	.....	1	.....	.....	.....	.....
Number of schools reporting the courses	27	30	13	13	6	9	10	4

ticular year, but because the other courses are so recommended for the years in which they have been listed. This sequence is further supported by the usual lengths of the courses, as may be seen in the next section.

TIME ELEMENT

Length of the courses.—Table LII indicates the practice as to the lengths of the several courses in agriculture: general agriculture is much more commonly a full-year than a half-year subject; farm crops and animal husbandry are somewhat more often full-year than half-year subjects; soils and horticulture are predominantly half-year subjects; farm mechanics and farm management when taught separately are more often half-year than full-year subjects, and correspondingly are taught as one course, which usually extends through a full school year; farm accounts is a half-year course.

Total time per week.—Table LIII presents the total time per week, including both recitation and laboratory, devoted to the several courses in agriculture. This seems to be very similar to that obtaining in other science courses, as shown in Table XLV. It is seen to range between wide extremes, but for no course does it in any

instance fall below 200 minutes. The more common practices are 225–249 (usually 225), 275–299 (usually 280), and 300–324 (usually 315) minutes. The first of these, distributed in five 45-minute periods per week, is reported in such schools as do not provide separate laboratory periods or laboratory time equivalent in amount

TABLE LII

LENGTH OF THE COURSES IN AGRICULTURE

Length of Course	General Agriculture	Farm Crops	Animal Husbandry	Soils	Horticulture	Farm Mechanics	Farm Management	Farm Mechanics and Farm Management	Farm Accounts
½ year	5	11	9	11	9	4	5	2	4
1 year	21*	16	17	2	4	2	4	8	.....
Not answering	.....	.....	4	.....	.....	.....	.....	.....	.....
Number of schools offering the course	26	27	30	13	13	6	9	10	4

* One of these reports only 32 weeks.

TABLE LIII

TOTAL TIME PER WEEK IN COURSES IN AGRICULTURE

Minutes per Week	General Agriculture	Farm Crops	Animal Husbandry	Soils	Horticulture	Farm Mechanics	Farm Management	Farm Mechanics and Farm Management	Farm Accounts	Total
200–224	3	1	2	.....	.....	.....	1	.....	.....	7
225–249	2	3	5	3	2	3	3	1	2	24
250–274	.....	.....	1	.....	.....	.....	1	.....	.....	2
275–299	5	4	2	2	5	.....	.....	1	.....	19
300–324	5	8	2	2	1	2	.....	1	1	22
325–349	1	.....	.....	.....	.....	.....	.....	.....	.....	1
350–374	3	.....	1	.....	.....	.....	.....	.....	.....	4
375–399	1	.....	.....	.....	.....	.....	.....	.....	.....	1
400–424	1	1	.....	1	1	.....	.....	.....	.....	4
425–449	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
450–474	.....	1	1	1	1	1	1	.....	.....	6
475–499	.....	1	2	2	1	.....	.....	.....	.....	6
No answer or answer indefinite	5	8	14	2	2	.....	3	7	1	42
Number of schools reporting the course	26	27	30	13	13	6	9	10	4	138

to that generally considered to be adequate for courses in science. Attention is called to the relatively large number of schools reporting this amount for animal husbandry and at the same time to the large proportion in this subject—almost half of those reporting the course—who give no answer or indefinite answers. This is due in large part to the fact that in this course larger provision must be and is made for observation trips, as will be pointed out under "Methods," p. 86. These observation trips, because of the nature of the course, take the place of much of the laboratory work. Their length is probably so irregular as to make impossible definite answers as to time devoted to the course. The other two practices, 275–299 (usually 280) and 300–324 (usually 315) minutes, represent conformity to the time allotment, already seen to be common in the other sciences, of three single recitation periods of 40 or 45 minutes each, and two double laboratory periods of 80 or 90 minutes each.

III. ORGANIZATION AND CONTENT OF THE COURSES

Inquiry was made into the constitution of courses in general agriculture. If the general field is separated for this purpose into five main divisions, viz., (1) agronomy, (2) animal husbandry, (3) horticulture, (4) farm mechanics and farm management, and (5) rural sociology, the representation of these constituents in the 26 courses in general agicrulture is as follows:

Constituents	Number of Schools
(1) and (2)	2
(1), (2), and (4)	1
(1), (2), (3), and (4)	10
All	8
Omitting some one of the first four constituents	5
Total	26

The content of the course in general agriculture is thus seen to be very commonly true to name.

The content of specialized courses in agriculture is to be implied in the names given them, and these have already been referred to. Some additional information as to this content may be found in what is reported under the head of "Practical Exercises," p. 86.

IV. METHODS AND EQUIPMENT

PRACTICAL EXERCISES

The practical exercises reported for the several specialized courses in agriculture by one or more teachers each are named here. Inquiry was not made into this aspect of the teaching of the course in general agriculture. Although a few of those exercises reported may not recommend themselves as intensely practical, for the most part they represent a wholesome tendency to relate the courses to vocation and life.

Farm crops: Germination and purity tests for corn and seed grains; selecting seed corn in the field; judging corn, grain, forage, and roots; variety tests on grains; work in grain diseases; weed and weed-seed identification; making weed-seed cases and collections of weeds and weed seeds; grass-seed identification; seeding lawn; pot and plot tests of soils and fertilizers; planning rotations; growing crops at home under home-project plan; physical analysis of soils; spraying.

Animal husbandry: Judging livestock (dairy and beef cattle, horses, sheep, swine, poultry); estimating age of livestock; home-project work in caring for farm animals; marketing stock; hoof-trimming; care and repair of harness; rope-splicing; dissection (veterinary); observation and treatment of animal diseases; bacteriological work; forming mock breeding associations; feeding of animals; practical application of balanced rations; feeding chickens; egg-study; running an incubator; testing milk and cream; making butter and cheese; study of creameries; running cream separators; keeping herd records.

Soils: Physical analysis of soils; microscopical examination of soil particles; testing soils as to temperature, water-holding, composition, acidity, alkalinity; effect of freezing on soils; drainage; soil inoculation; manures; pot, plot, and laboratory tests of fertilizers.

Horticulture: Planting; spray mixing and spraying; grafting; budding; pruning; picking, sorting, and judging; garden work; home-garden projects; selection of seed potatoes; practical care of truck; study of plant diseases; making collections of destructive insects; visits to greenhouses and gardens; "raising of tomato,

cabbage, and flower plants in hothouse and cold-frames for sale to city people."

Farm mechanics: Laying out complete drainage system with level; doing actual ditching; practice in land measurement; drawing plans for farm buildings; study and operation of gas engines, farm and spray machinery, automobiles; setting up machines; babbitting; concrete work; rope splicing and knotting; installation of weir for local farmers; "making homemade machinery (for instance, this class made an Ames hulling and scarifying machine and a corrugated concrete roller) . . . . surveying and planning systems for irrigation and for drainage for farmers (5 are in actual operation now)."

Farm management: Keeping records on farms—"as home-project each student keeps records and accounts on home farm for a period"; accounts of near-by farms; making inventories; estimating depreciation; planning rotations; labor records, feeding records, field records, financial records; "laying out map of county farm"; study of actual farm conditions; "they revise or rearrange some farm they are familiar with as one problem."

Farm accounts: Because so few schools report this course, the data on practical exercises are not enlightening enough to warrant reproduction here.

FIELD TRIPS

Field or observation trips are all but a universal constituent of courses in agriculture. Only exceptionally does a teacher report that these trips do not find a place in his courses. Furthermore, very few teachers fail to answer the question, which is additional evidence of the universality of the practice.

The number of field trips reported varies widely. Although it is impossible to tabulate the responses, it may be emphatically stated that decidedly more are reported for courses in agriculture than for other courses in science. The course for which the greatest number are reported is animal husbandry. For this course a single teacher reports "none yet." Three teachers fail to answer the question. A few teachers report in indefinite terms, as "irregular," "taken as needed," etc. The numbers reported for the full-year courses in this subject range from "12 or more" to "70–80."

The time spent in these trips also varies widely. The answers are given in such terms that they cannot be tabulated. It may be said, however, that they extend from one-half hour to a full day. Most of the trips are reported as being compassed in one to three hours.

LABORATORIES

Of the 49 schools making reports in agriculture, as may be seen in Table LIV, 20 report special laboratories for the subject, while 21 report using some other laboratory. The responses of these

TABLE LIV

LABORATORIES FOR AGRICULTURE

	Schools Teaching Only General Agriculture	Schools Teaching Specialized Courses	Totals
Providing special laboratories...	4	16	20
Using other laboratories.....	10	11	21
No laboratories.....	.....	3	3
Not answering.....	4	1	5
Total.....	18	31	49

schools were also compiled after having been divided into two classes, (1) those teaching *only* general agriculture (18 in number), and (2) those teaching specialized courses (31 in number, of which 8 are also teaching courses in general agriculture), and the resulting compilation included in this table. A comparison of the figures for these two classes of schools indicates at once that a much larger proportion of the latter than of the former group provides special laboratories for the work.

THE SCHOOL PLOT OR FARM

The extent to which the schools provide plots or farms for the work in agriculture may be seen in Table LV. When the schools are taken as a whole, almost as many make provision for the plot or farm as do not, but when the schools are divided into the two classes mentioned in the foregoing paragraph, it is seen at once that a larger proportion of the group offering specialized courses than of the group offering only general agriculture provides the plot or

farm. The contrast is even more striking when the areas of these plots or farms are given consideration. The areas of the 4 plots reported by schools offering only general agriculture are one-fourth of 1 acre, one-half of 1 acre (2 schools), and 2 acres. The areas of the 16 plots or farms reported by the schools offering specialized courses range from "one city lot" to 38 acres, 8 of them being from 5 to 10 acres in area.

TABLE LV

SCHOOL PLOTS OR FARMS

	Schools Teaching Only General Agriculture	Schools Teaching Specialized Courses	Totals
Providing school plot or farm...	4	16	20
Not providing school plot or farm	11	13	24
Not answering.....	3	2	5
Total.....	18	31	49

The facts just presented as to laboratory and school plot or farm force the conclusion that schools providing specialized courses in agriculture make better provision for the work than do schools offering only the course in general agriculture.

The uses to which the 20 schools providing a plot or farm put it are shown by the following:

Use	Number of Schools
Demonstration.....	13
Experiment.....	10
School gardens.....	12
As a laboratory for students.....	12

V. AIMS

The teachers were asked to state whether they are teaching agriculture as a vocational or as a "general" high-school subject. The term "general" is here used with no special reference to what we have been calling the course in general agriculture, but as contrasted with vocational, and signifies that the subject is dominated by the same aims that dominate the usual non-vocational high-school subject of study. The totals at the foot of Table LVI indicate that in 15 schools the subject is taught as a general subject;

in 20, as a vocational subject; and in 12, as both general and vocational. The table also indicates that in the schools teaching general agriculture only the vocational aim is not as commonly recognized as is the general, whereas in the schools teaching specialized courses, either as the whole or as a part of the offering, the vocational aim is predominant.

TABLE LVI

NUMBER OF SCHOOLS TEACHING AGRICULTURE AS A GENERAL HIGH-SCHOOL SUBJECT, AS A VOCATIONAL SUBJECT, OR BOTH

	Taught as a General Subject	Taught as a Vocational Subject	Taught as Both General and Vocational	No Answer	Total
Schools reporting general agriculture only.....	10	1	6	1	18
Schools reporting specialized courses only.....	4	14	4	1	23
Schools reporting both general agriculture and specialized courses.....	1	5	2	.....	8
Total.....	15	20	12	2	49

The recognition of the vocational aim makes pertinent the presentation of facts concerning the proportion of young people from the farm. Of the 49 teachers responding, 36 made usable replies to the inquiry in this matter. For these 36 schools the percentage of boys from the farm ranges from 0 (1 school only) to 75.0, with an average of 34.4; the percentage of girls from the farm ranges from 0 (15 schools) to 68.66, the average being 18.9; the percentage of both boys and girls from 0 to 100, the average being 53.4, somewhat more than half. Of these 36 schools, 13 teach agriculture as a general high-school subject, 17 as a vocational subject, and 6 as both general and vocational. The percentages of boys from the farm, girls from the farm, and both boys and girls from the farm for each of these three groups of schools, with those percentages already reported from the schools as a whole, are presented in Table LVII. From these percentages we may draw the following interpretations: (1) The percentage of boys from the farm is larger in the classes in agriculture in those schools in

which the vocational aim is given recognition than in those in which it is taught as a general high-school subject; (2) the percentage of girls from the farm is larger in the classes in agriculture in those schools in which it is taught as a general high-school subject than in those in which the vocational aim is given recognition; and

TABLE LVII

AVERAGE PERCENTAGE OF BOYS AND GIRLS FROM THE FARM IN CLASSES IN AGRICULTURE

	When Taught as a General High-School Subject	When Taught as a Vocational Subject	When Taught as Both General and Vocational	For all Schools Making Usable Replies
Average percentage of boys from the farm	27.6	38.3	38.2	34.4
Average percentage of girls from the farn	30.3	10.0	19.7	18.9
Average percentage of both boys and girls from the farm	57.9	48.3	57.9	53.4

(3) the total percentage of both boys and girls from the farm seems to be somewhat larger in the classes in agriculture in those schools in which it is taught as a general high-school subject, this being due to the relatively large percentage of girls from the farm as reported in (2).

VI. SUMMARY

1. The offering in agriculture varies greatly in amount, from a single course in general agriculture to a specialized sequence extending through four years. Some schools offer both general agriculture and one or more specialized courses. The sequences are usually three or four years in length. The courses appearing in the sequences are one or more of the following: farm crops, animal husbandry, soils, horticulture, farm mechanics and farm management, and farm accounts.

2. Farm crops appears more frequently in the first year of the high school than in other years. Animal husbandry is most frequently a second-year subject. Soils and horticulture are not definitely recommended by practice for any year. Farm mechanics and farm management are more commonly found in the fourth

year. Farm accounts appears with equal frequency in the third and fourth years.

3. *a*) The lengths of most of the courses have not been definitely fixed in practice. They vary between half-year and full-year courses. General agriculture, farm crops, animal husbandry, and farm mechanics and farm management are more commonly full-year courses, whereas soils, horticulture, and farm mechanics and farm management are more commonly half-year subjects. Farm accounts seems always to extend through a half-year.

b) The practice as to time per week allotted to courses in agriculture does not differ essentially from that which obtains in other science courses.

4. Courses in general agriculture are usually true to name, the content being drawn from all the main divisions of agriculture.

5. There is a wholesome tendency through the introduction of practical exercises to relate the courses in agriculture with vocation and life.

6. Field trips are a prominent constituent of courses in agriculture.

7. Schools offering specialized courses in agriculture more frequently provide special laboratories and school plots or farms than do schools offering only general agriculture.

8. The courses in agriculture are taught with approximately equal frequency as vocational subjects and as general high-school subjects.

CHAPTER V

HISTORY AND THE OTHER SOCIAL STUDIES

A. History

I. DISTRIBUTION OF RESPONSES TO THE INQUIRY

The distribution, by states, of the schools from which responses to the inquiry in the teaching of the various courses in history have come is shown in Table LVIII. This table does not include three

TABLE LVIII

DISTRIBUTION, BY STATES, OF THE SCHOOLS FROM WHICH HAVE COME RESPONSES TO THE INQUIRY IN THE VARIOUS COURSES IN HISTORY

State	Number of Responses in				
	Ancient History	Mediæval and Modern History*	English History	American History	Total
Colorado	.....	1	1	4	6
Illinois	15	8	3	18	44
Indiana	7	4	2	13	26
Iowa	3	4	1	8	16
Kansas	4	1	.....	6	11
Michigan	8	8	1	13	30
Minnesota	5	2	2	2	11
Missouri	8	7	2	11	28
Montana	2	1	.....	.....	3
Nebraska	2	1	1	3	7
North Dakota	.....	.....	1	1	2
Ohio	11	9	3	10	33
Oklahoma	1	.....	.....	1	2
South Dakota	1	4	.....	3	8
Wisconsin	4	2	.....	11	17
Total	71	52	17	104	244

* With these have been included 6 reports on modern history.

reports in general history, one in Hebrew history, and one report each in separate courses in Greek and Roman history, to which, on account of their small number, no further reference is made in this chapter.

II. THE OFFERING IN HISTORY

EXTENT OF OFFERING

All but one of the 163 different schools from which responses to the inquiry in history have come have complied with the request to set down their history sequences. These offerings in history, exclusive of civics and economics, extend through from 1 to 4 courses, as follows: 1 school offers a single course, 9 schools offer 2 courses, 98 schools offer 3 courses, 54 schools offer 4 courses.

The school offering but a single course reports it as ancient history. Of the 9 schools offering 2 courses, 5 offer ancient and mediaeval and modern history, 2 offer ancient and American, 1 offers general and American, and 1 English and American. The offering in the 98 schools reporting 3 courses is as follows: 79 offer ancient, mediaeval and modern,[1] and American, and 19 schools offer ancient, English, and American. All the 54 schools reporting 4 courses offer ancient, mediaeval and modern,[1] English, and American history.

YEARS IN WHICH THE COURSES APPEAR

The years in which the courses in history appear, as indicated in the responses, are presented in Table LIX. The facts are in brief these: ancient history appears almost an equal number of times in the first and second years, with only a few schools listing it for the third year; mediaeval and modern history appears with almost equal frequency in the second year and in the third year, very few schools listing it for the fourth year; English history is predominantly a third-year subject, with a sprinkling in other years; American history is almost always reported for the fourth year, although a few schools list it for the third and one school for the first year.

The teachers were asked to state what aspects of the various subjects as they are taught recommend them for the years for which they are reported. The answer most commonly given for the place of ancient history is its position in the chronological sequence in the historical field; many teachers seem to believe that the study

[1] A few of these report modern instead of mediaeval and modern history, but for convenience they have been included here.

of history must be begun at the beginning of recorded history. A number of teachers speak of ancient history as being easier of comprehension than subsequent courses: "the easiest of all history courses," "the relative simplicity of government and other institutions prior to Rome," "the story element in oriental history and the biographical character of Greek and Roman history." Others say that it is suited for this place because of its foundational relation to other subjects, e.g., Latin, art, and English. Eight teachers recommend it for second-year work because it is "too difficult for Freshmen." Other answers are less significant.

TABLE LIX

NUMBER OF SCHOOLS REPORTING VARIOUS YEARS IN WHICH THE COURSES IN HISTORY APPEAR

Year or Years in High School	Ancient History	Mediaeval and Modern History	English History	American History
1	33	.....	2	1
2	29	25	1	.....
1, 2	5	.....	.....	.....
3	4	23	11	5
2, 3	.....	1	.....	.....
4	.....	2	1	96
3, 4	.....	1	1	2
2, 3, 4	.....	.....	1	.....
Total number of responses to questionnaire	71	52	17	104

Mediaeval and modern history, also, is recommended by many teachers for the years in which it commonly appears because of its place in chronological sequence: "mediaeval and modern should follow ancient history," "mediaeval and modern should come between ancient and American," "mediaeval and modern should be given in the second year as preparation for later history." Several teachers speak of the advantages it offers for correlation with the English literature that usually appears in these years. Eight teachers listing it as a third-year subject mention the maturity desirable for its adequate comprehension. Other answers are less significant and less frequent.

English history is recommended by the teachers for its usual place in the third year because of its position in chronological sequence. Frequent answers are: "it should follow mediaeval and precede American history," and "it should precede American history." Correlation with English literature is also given as a reason for its place here.

American history, also, is very commonly recommended for its place in the fourth year by its position in chronological sequence: "it should follow mediaeval and modern and English history," "culmination of all previous history," etc. However, another very common recommendation appears among the answers: the need of civic training for the student soon to be graduated. Other answers refer to the maturity needed for its proper comprehension, the desirability of separating it from the American history of the elementary school, its required place in high-school normal-training courses, and the opportunity offered of correlating it with the American literature appearing in this year.

TIME ELEMENT

Weeks in the courses.—With 8, 3, and 3 exceptions, respectively, courses in ancient, mediaeval and modern, and English history are a full year of not less than 36 weeks in length. The exceptions are: ancient history: 17 weeks, 1 school; 18 weeks, 2 schools; "24–36 weeks," 1 school; 33 weeks, 1 school; 34 weeks, 3 schools; mediaeval and modern history: 18 weeks, 2 schools; 34 weeks, 1 school; English history: 18 weeks, 3 schools. It is probable that teachers reporting 33 and 34 weeks have subtracted time set apart for semester or other examinations. Of the 104 schools from which responses on American history were received, 19 report half-year courses of 18–20 weeks in length, 79 report a full-year course of 36 or more weeks, and 1 school each reports courses of 24, 25, 26, 27, 28, and 33 weeks. This marked diversity of practice will be partially explained later under the head of "Organization of the Course in American History." It may be said in passing that the diversity is more seeming than real and grows out of variation between two extremes of practice—one of presenting American history and government as separate courses, and the

other of presenting them as coherent constituents of a single course.

Periods per week.—The number of periods per week devoted to courses in history is almost always five. The exceptions are: in ancient history, 3 schools report four periods and 1 reports seven periods; in mediaeval and modern history, 1 school reports four periods; in English history, 1 reports four periods; and in American history, 2 report four periods and 1 reports seven periods.

Length of periods.—The length of periods for classes in history is shown in Table LX. Almost no schools provide periods less than

TABLE LX

NUMBER OF SCHOOLS REPORTING VARIOUS LENGTHS OF CLASS PERIODS FOR COURSES IN HISTORY

Length of Period in Minutes	Ancient History	Mediaeval and Modern History	English History	American History
35	.....	1	.....	.....
37	.....	.....	.....	2
40	26	19	7	38
41	.....	.....	.....	2
42	2	2	.....	3
43	1	1	.....	1
45	32	26	7	44
50	2	2	1	5
55	2	.....	.....	3
60	5*	1	1†	4
65	1	.....	.....	1
80	.....	.....	.....	1†
No answer	.....	.....	1	.....
Total number of responses to questionnaire	71	52	17	104

* Two of these report supervised study during half the period.
† Supervised study during half the period.

40 minutes in length, while all but a very few schools provide periods from 40 to 45 minutes in length. It is deserving of notice that at least 4 schools provide time for supervised study, 3 of them during a 30-minute, and the fourth during a 40-minute, period.

III. ORGANIZATION OF THE COURSE IN AMERICAN HISTORY

The only course in history concerning whose organization and content a direct question was put was American history. The

question read: "If American history is taught as a part of a course in American history and government, what fractional part of the course is devoted to each?" Twenty-eight teachers report definitely that they do not make government a part of the course in American history. Of these 28, 19 are those specified under "Weeks in the Courses" (on p. 96) as reporting a half-year in the subject. In all but 2 of these 19 cases the half-year course in American history is followed by a separate half-year in government or civics. The remaining 9 of this group of 28 may be understood to exclude special and distinct recognition of work in government from their courses in American history.

The remaining 72 who answer this question[1] signify that their courses are made up in some part of work in government. The fractional part devoted to the two aspects of the courses may be seen in Table LXI. Thirty-one of the 36 who are tabulated as devoting one-half to three-fifths of the total time to history, or 43 per cent of the 72 schools here concerned, divide the time equally

TABLE LXI

PROPORTIONAL DISTRIBUTION OF TIME DEVOTED TO HISTORY AND GOVERNMENT IN COURSES IN AMERICAN HISTORY AND GOVERNMENT IN SCHOOLS REPORTING THESE AS CONSTITUENTS OF A SINGLE COURSE

Number of Schools	Proportion of Time Devoted to	
	History	Government
36		
27		
9		

between history and government, whereas all the remaining 41 schools devote from somewhat more than one-half to five-sixths of the total time to history and one-sixth to somewhat less than one-half the time to government.

The facts appearing here may be summarized as follows: courses in American history range between two extremes of practice, one typified by such schools as constitute them in no special part of

[1] Two of the 104 teachers did not answer this question and the answers of 2 others were indefinite.

government, and the other by those that divide the time equally between history and government. The schools approximating the latter extreme follow either the practice of making the work in history and government coherent parts of a single course or that of separating the work into two distinct courses, one of which is American history and the other government or civics.

IV. METHODS

HOW TEXTBOOKS ARE USED

Four modes of using the textbooks were listed in the questionnaire, and the teachers were asked to signify which of these modes they were following. These modes were listed in the order of decreasing dependence upon the text and were as follows: (1) "as the main body of the course with little or no collateral reading," (2) "as basis of assignments to be supplemented by required

TABLE LXII

NUMBER OF TEACHERS OF HISTORY FOLLOWING THE VARIOUS METHODS OF USING THE TEXTBOOK LISTED IN THE QUESTIONNAIRE

Mode of Use	Ancient History	Mediæval and Modern History	English History	American History
(1)	19	7	2	18
(2)	44	40	10	67
(3)	3	1	1	5
(4)	1	.....	.....	5
Some combination of (1), (2), (3), or (4)	4	1	3	3
Not answering or not answering definitely	.....	3	1	6
Total number of responses to questionnaire	71	52	17	104

collateral readings," (3) "as an outline or syllabus in connection with collateral readings," and (4) "on the same basis as other readings of the course." The facts appearing in compilation of the responses are set forth in Table LXII, which shows the numbers of teachers reporting the various uses listed. In order better to bring out the significance of these facts, they have been computed in percentages and reproduced in Table LXIII. On account of the

relatively small number of responses to the inquiry in English history, too much importance should not be attributed to the figures for that subject. Mode (2) is most commonly used in all courses. It appears, however, that there is a somewhat greater tendency to follow mode (1) in ancient history than in subsequent courses.

TABLE LXIII

PERCENTAGES OF TEACHERS OF HISTORY FOLLOWING THE VARIOUS METHODS OF USING THE TEXTBOOK LISTED IN THE QUESTIONNAIRE

Mode of Use	Ancient History	Mediaeval and Modern History	English History	American History
(1)	26.8	13.5	11.8	17.3
(2)	62.0	76.9	58.8	64.4
(3)	4.2	1.9	5.9	4.8
(4)	1.4	.....	.....	4.8
Some combination of (1), (2), (3), or (4)	5.6	5.7	17.6	2.9
No answer	.....	1.9	5.9	5.8

Corresponding to this is the less apparent tendency to follow mode (2) in mediaeval and modern history and in American history. The percentages using modes (3) and (4) in all courses are notably small. In general, it may be said that, although there is some tendency in the later courses to place less dependence on the textbook, this tendency is not as marked as one could be led to expect in view of the greater maturity of the student.

COLLATERAL READING

Amount of collateral reading.—In order to make readily comparable the amounts of required collateral reading as reported by the teachers, they were reduced to the uniform basis of the number of pages per semester. The resulting computations appear in Table LXIV. It will be seen that very few teachers report definitely that they require no collateral reading. Perhaps we are justified in adding to these few those 18 teachers of ancient history, 9 of mediaeval and modern history, 3 of English history, and 18 of American history who fail to answer the question. The table indicates that the amounts of reading required vary between wide extremes and that there are no marked modal practices. The

median amounts of collateral reading as reported by those teachers making definite replies are as follows: ancient history, 250 pages per semester; mediaeval and modern history, 250 pages per semester; English history, 275 pages per semester; American history, 350 pages per semester. These figures indicate that there

TABLE LXIV

APPROXIMATE AMOUNT OF COLLATERAL READING IN PAGES PER SEMESTER

Number of Pages	Number of Schools Reporting for			
	Ancient History	Mediaeval and Modern History	English History	American History
None	2	1	.....	.....
25	.....	1	.....	1
50	2	2	1	1
75	2	.....	.....	2
100	6	5	1	3
120	.....	.....	.....	1
150	6	2	.....	4
180	.....	.....	.....	7
200	4	5	2	8
250	10	8	2	6
300	2	2	2	3
350	.....	.....	.....	4
400	5	3	.....	3
450	.....	.....	.....	5
500	3	6	2	9
600	.....	2	.....	3
700	2	1	.....	3
750	.....	.....	.....	2
800	2	1	.....	1
900	.....	1	2	3
1,000	1	.....	.....	5
1,500	.....	.....	.....	3
1,800	1	.....	.....	.....
3,500	1	.....	.....	.....
Not answering	18	9	3	18
Answers in terms not usable	4	3	2	9
Total number of responses to questionnaire	71	52	17	104

is a tendency to increase the amount of collateral reading from the earlier to the later courses, although the difference is not as great as one is led to expect in consideration of the increasing maturity of the student.

Kinds of collateral reading.—The following kinds of collateral reading were listed in the inquiry in history, the teachers being

directed to indicate, by checking, those they require of their students: other texts, more extended works, source material, biography, historical fiction, poetry, magazines, and newspapers. The percentages of teachers reporting use of these various kinds of reading supplementary to the text are presented in the accompanying table (LXV). The most common kinds of collateral reading are the other texts, more extended works, source material, biography, and periodicals. While the proportion of the teachers reporting the use of other texts is smaller, the proportion of those reporting the use of more extended works and source material is larger for the later than for the earlier courses. Biography also

TABLE LXV

PERCENTAGE OF TEACHERS OF HISTORY REPORTING VARIOUS KINDS OF COLLATERAL READING

Kind of Reading	Ancient History	Mediaeval and Modern History	English History	American History
Other texts	77.5	69.0	47.1	60.6
More extended works	42.3	71.2	64.7	85.6
Source material	64.8	73.1	88.2	81.7
Biography	64.8	63.5	76.5	82.7
Historical fiction	28.2	38.7	35.3	40.4
Poetry	18.3	19.2	23.5	18.3
Magazines	42.3	76.9	64.7	85.6
Newspapers	31.0	75.0	47.1	70.2

tends to become a somewhat more common constituent of the later courses. The representation of historical fiction is fairly uniform throughout, although slightly more common in American history than in other courses. Poetry is a prominent constituent of the collateral reading in none of the courses. Magazines and newspapers seem to receive more attention in mediaeval and modern history and in American history than in the other two courses, probably because of the availability of contemporaneous material in periodicals for the more modern aspects of these courses.

Modes of testing collateral reading.—The following modes of testing collateral reading were listed in the inquiry, and the teachers were asked to check those of which they make use: oral reports in class, discussions in class, quiz in class, written examinations or

tests, written reports, themes, notebooks, and outlines or digests handed in. The compilations of the answers appear in Table LXVI. In the right-hand column are to be found the total numbers of teachers reporting the use of each of these methods. Oral reports

TABLE LXVI

NUMBER OF TEACHERS REPORTING USE OF CERTAIN MODES OF TESTING COLLATERAL READING

Mode of Testing	Ancient History	Mediæval and Modern History	English History	American History	Total
Oral reports in class	64	44	15	95	218
Discussions in class	48	34	12	75	169
Quiz in class	22	22	8	54	106
Written examinations or tests	27	17	9	50	103
Written reports	31	22	6	54	113
Themes	24	16	4	27	71
Notebooks	39	30	10	61	140
Outlines or digests handed in	25	19	4	47	95
Total number of responses to questionnaire	71	52	17	104	244

in class are very generally used, with discussions in class and the use of notebooks next in order. The remaining methods—written reports, quiz in class, written examinations or tests, outlines or digests handed in, and themes—although frequently reported, are not in as common use as those already named.

CORRELATION

The following subjects of study were listed in the questionnaire, and the teachers were asked to indicate with which of them they make consistent efforts to correlate their work in history: English composition, English literature, geography, civics, political economy, Latin, current events, sciences, art and architecture, drawing, spelling, and penmanship. The results of the computations of the percentages of the teachers of the various history courses who make such efforts to correlate their work with the subjects named appear in Table LXVII. The correlation of history with geography and current events is notably high for all courses,

although, of course, the correlation of ancient history with current events is not, and cannot be expected to be, as high as for other history courses. Correlation with English composition is fairly high throughout, while that with English literature is not high, except, of course, in the case of English history. Correlation with civics becomes increasingly prominent from course to course until in American history it becomes almost the universal practice.

TABLE LXVII

PERCENTAGE OF TEACHERS REPORTING EFFORTS TO CORRELATE HISTORY WITH OTHER SUBJECTS

Subject with Which History Is Correlated	Ancient History	Mediaeval and Modern History	English History	American History
English composition	52.1	36.5	58.8	43.3
English literature	29.6	46.2	88.2	32.7
Geography	76.1	75.0	82.4	78.8
Civics	47.9	63.5	64.7	94.2
Political economy	29.6	44.2	35.3	69.2
Latin	42.3	17.3	35.3	5.8
Current events	70.4	92.3	100.0	95.2
Sciences	21.1	19.2	23.5	15.4
Art and architecture	57.9	42.3	47.1	15.4
Drawing	16.9	11.5	29.4	18.3
Spelling	74.6	50.0	70.6	60.6
Penmanship	52.1	42.3	64.7	64.4

Correlation with political economy is not high until American history is reached. As is to be expected, the correlation with Latin is highest for ancient history. The sciences and drawing do not share in this effort to a great extent in any course in history. Art and architecture receive considerable attention in the first three courses, but suddenly drop to an almost negligible position in American history. Spelling and penmanship seem to be fairly strong correlates in all courses.

METHODS AND DEVICES USED TO SECURE QUALITATIVE RESULTS

A large proportion of teachers fail to make answer to the question as to methods or devices which they have found notably effective in securing qualitative results. Those most commonly mentioned are: trips and visits to museums, meetings of city council, etc.; pictures, stereopticons, maps, charts, and clippings;

emulation; comparison of different authors; reviews and summaries; notebooks; outlines; debates; oral and written tests; and supervised study.

V. AIMS

The aims listed in the questionnaire and the percentages of the teachers of each of the courses who have signified their concurrences in them will be found in Table LXVIII. Aims (2), (6), (7), (9),

TABLE LXVIII

PERCENTAGE OF CONCURRENCE OF TEACHERS OF HISTORY IN AIMS LISTED IN THE INQUIRY

Aims	Ancient History	Mediaeval and Modern History	English History	American History
1. To master the text.....	59.2	44.2	52.9	46.2
2. To cultivate the power of handling facts.....	85.9	78.9	82.4	81.7
3. To develop the spirit of nationalism.....	42.3	40.4	47.1	70.2
4. To cultivate "reconstructive imagination"..	59.2	55.8	82.4	59.6
5. To equip the student with a store of historical information.....	62.0	65.4	64.7	57.7
6. To develop the "faculty of discrimination".....	67.6	75.0	94.1	82.7
7. To promote good citizenship.....	73.2	69.2	70.6	93.3
8. To develop ability in speech, oral and written	76.1	65.4	58.8	76.0
9. To inspire with a love of reading.....	63.4	75.0	70.6	63.5
10. To teach the use of books	74.6	82.7	82.4	74.0

and (10) are assented to by very large percentages of teachers for all courses, aim (7) becoming all but universal with teachers of American history. Aim (1) is concurred in by a larger proportion of teachers of ancient history than of teachers of other courses, which appears to conform to the tendency, noted above under the head "How Textbooks Are Used," of a large percentage of the teachers of this course to use the textbook as the main body of the course with little or no collateral reading. Aim (3) naturally leaps into prominence in the course in American history, after having only

a fair holding in preceding courses. Aim (5) is considered a valid one by approximately three-fifths of the teachers in all courses. Aim (8) is generously subscribed to by teachers of all courses, but more especially by teachers of ancient history and American history.

VI. SUMMARY

1. Most schools offer 3 or 4 courses in history, exclusive of the courses in civics and economics. The 4 courses offered are ancient, mediaeval and modern, English, and American history. When 3 courses are offered, either the second or third just named is omitted, more commonly the third.

2. With few exceptions ancient history appears in the first and second years, mediaeval and modern history in the second and third, English history in the third, and American history in the fourth. The principal reasons given for placing these courses in the years in which they appear are those related to chronological sequence. American history is placed in the fourth year so as to furnish the student with some civic equipment when he is about to leave school.

3. *a*) History courses are commonly a full year of 36 or more weeks in length, although a few courses in English history and a large number in American history are a half-year in length. There are most commonly five 40- or 45-minute class periods per week.

b) A few schools are providing time for supervised study.

4. Courses in American history range between two extremes of practice, one typified by such schools as constitute them in no special part of government, and the other by those that divide the time equally between history and government, these two phases sometimes being coherent parts of a single course and sometimes two distinct courses.

5. *a*) The textbook is more commonly used as the basis of assignment to be supplemented by required collateral reading, although a considerable proportion of teachers still use it as the main body of the course, with little or no collateral reading. More teachers of ancient history than of other courses follow the latter mode of use.

b) The amount of collateral reading varies somewhat with the place of the course in the history sequence, more of such reading being required for the later than for the earlier courses.

c) The kinds of collateral reading are: other texts, more extended works, source material, biography, historical fiction, poetry, magazines, and newspapers. The first class named is more often used in the earlier than in the later courses, while more extended works, source material, and biography are more often used in the later courses.

d) The methods of checking collateral reading are: oral reports, discussions and quizzes in class, written examination and tests, written reports, themes, notebooks, and outlines or digests handed in.

6. Correlation of history is reported with English composition, English literature, geography, civics, political economy, Latin, current events, sciences, art and architecture, drawing, spelling, and penmanship. It seems to be most common with English composition, geography, civics, current events, spelling, and penmanship.

7. There is fairly general agreement as to the aims teachers keep prominent in their teaching.

B. Civics

I. Distribution of Responses to the Inquiry

The responses to the inquiry in civics have come from 29 teachers in schools distributed as follows:

State	Number of Schools
Colorado	1
Illinois	4
Iowa	3
Kansas	2
Michigan	1
Minnesota	2
Missouri	1
Montana	2
Nebraska	1
Ohio	6
South Dakota	2
Wisconsin	4
Total	29

II. THE OFFERING

YEARS IN WHICH CIVICS IS TAUGHT

The years of the high school in which civics is taught appear in Table LXIX. It is seen to be predominantly a fourth-year subject, although some schools list it for the third and a very few for one of the first two years of the high school.

TABLE LXIX

YEARS IN WHICH THE COURSE IN CIVICS APPEARS

Year or Years	Number of Schools
First	1
Second	2
Third	2
Fourth	18
Third or fourth	4
First *and* fourth	1
Second year of junior high school (eighth grade)	1
Total	29

The responses to the question as to the aspects of the subject as it is taught that recommend it for the years in which it is reported are so few and insignificant for years other than the fourth that none are quoted here. Eight teachers say that the fourth year is a satisfactory place for the course because of the desirability of correlating it with American history, which appears in the same year, while 7 say that it should be taught in this year because of the maturity required for its adequate comprehension. Other responses less frequently made refer to "final preparation for citizenship" and to its relation to political science.

CIVICS AS A SEPARATE COURSE OR AS A PART OF THE COURSE IN AMERICAN HISTORY

Of the 29 teachers replying, 20 report civics as a separate subject, although 5 teachers volunteer the information that it follows a semester of American history to complete one unit of credit; 8 report civics as a part of the course in American history; 1 reports it as a separate subject in the first year and as part of the course in American history in the fourth year.

TIME ELEMENT

Length of the course.—Of these 20 teachers who indicate that civics as taught in their schools is a separate subject, 17 report that it extends through a half-year of 18–20 weeks, 2 that it extends through a full school year, and 1 that it extends through 9 weeks only. All the 8 teachers who indicate that civics, as taught in their schools, is taught in combination with American history report such combination courses to be a full year of 36 or more weeks in length. The approximate proportion of the total time allotted to civics in these 8 schools is one-fifth in 1 school, one-third in 2, two-fifths in 1, and one-half in 4.

Periods per week and length of periods.—With one exception the number of periods per week is five. In this one school the work in civics extends through three 45-minute periods per week for 36 weeks. The length of periods is without exception 40 or 45 minutes.

III. ORGANIZATION OF THE COURSE

PROPORTIONS OF CIVIC THEORY AND PRACTICE AND OF COMMUNITY CIVICS

The approximate proportion of time allotted to civic theory and practice (government proper) ranges from one-tenth to four-fifths, with 15 schools reporting one-half. Consequently the approximate proportion of the total time devoted to community civics (public welfare, etc.) ranges from one-fifth to nine-tenths, with 15 schools reporting one-half.

The questionnaire contained a list of aspects of community civics, and the teachers were asked to check those to which they give attention in their courses. Table LXX shows the numbers of teachers reporting attention to the various aspects named.

IV. METHODS

HOW TEXTBOOKS ARE USED

Eighteen teachers report that they use the textbook as a basis of assignments to be supplemented by collateral readings, 7 use it as a syllabus in connection with collateral readings, and 1 plans to use it on the same basis as other readings of the course. The 3 remaining teachers do not answer the question.

MATERIALS STUDENTS ARE REQUIRED TO USE

The following materials were listed in the questionnaire, and the teachers were asked to indicate by checking which of them they require their students to use: prepared supplementary readings

TABLE LXX

NUMBER OF TEACHERS GIVING ATTENTION TO CERTAIN ASPECTS OF COMMUNITY CIVICS

Aspect	Number of Teachers
Community health	26
Public utilities	25
Immigration	25
Taxation	25
Pure food	24
Public recreation	23
Civic beauty	23
Transportation	22
Charities	22
Correction	21
Juvenile courts	20
Communication	20
Housing	19
Occupations	19
Child labor	18
Wealth	17
Savings banks	17
Social education (wider use of the school plant)	16
Urban and rural life	14
Life insurance	12
Family income	12
Total number of responses to the questionnaire	29

(e.g., Kaye's), fuller treatises on political science, reports of proceedings and enactments of legislatures and of Congress, census reports, reports of public and private organizations, and articles in magazines and newspapers. The number of teachers reporting their use is shown in Table LXXI. One or two teachers each add the following: other texts, texts on state civics, reports of the state board of health, law dictionary, and immigration reports.

TABLE LXXI

NUMBER OF TEACHERS REPORTING USE OF VARIOUS KINDS OF SUPPLEMENTARY MATERIALS

Material	Number of Teachers
Articles in magazines and newspapers	26
Reports of proceedings and enactments of legislatures and of Congress	21
Fuller treatises on political science	19
Reports of public and private organizations	18
Prepared supplementary readings	17
Census	13
Total number of responses to questionnaire	29

SPECIAL METHODS AND DEVICES

Table LXXII contains the names of special methods and devices listed in the inquiry and also presents the number of teachers reporting that they have found their use successful.

TABLE LXXII

NUMBER OF TEACHERS REPORTING THE USE OF CERTAIN SPECIAL METHODS AND DEVICES

Method or Device	Number of Teachers
Current events	27
Class debates	22
Charts and diagrams	20
Outlines	19
Pictures	19
Visits to courts	18
Visits to voting places	17
Mock trials	17
Mock elections	17
Special talks to class by officials	17
Themes on national or other questions	17
Visits to city council	15
Visits to jail	14
Mock congresses	8
Mock meetings of city council	5
Visits to legislature	3
Mock town meetings	3
Total number of responses to questionnaire	29

CO-OPERATION WITH LOCAL CIVIC, COMMERCIAL, AND OTHER BODIES

The teachers were asked to describe briefly any successful co-operation between their classes and the local civic, commercial, and other bodies and authorities. It is significant that 15 of the 29 teachers do not answer this question—there is no such co-operation of their classes in civics. Several of the answers merit quotation: "raised $5,000 for $150,000 Y.M.C.A.; Pageant; $5,000 lecture course"; "class gathered material for Civic Club on care of garbage, ashes, etc. . . . . for Swat the Fly campaign"; "secure data and information from city officials"; "Commercial Club furnishes handbooks and speakers." One teacher answers, "Here, where our course should be strongest, it has proved weakest."

V. AIMS

The responses to the question as to the aim of the course in civics indicate that, when taken in the broadest implications of the statement, the main purpose is related to the practical value of the subject as preparation for citizenship. This may be seen in the statements a few teachers have set down as additional aims: "interest in current events," "meaning and use of social structures," "to inspire with a love of fairness."

VI. SUMMARY

1. Civics is usually a fourth-year subject.

2. *a*) When taught as a separate subject, it usually extends through a half-year of 18–20 weeks, but occasionally appears as a full-year subject.

b) When taught as a part of a course in American history, it sometimes extends through less than a half-year.

3. The proportion of time allotted to (1) civic theory and practice and (2) community civics varies between wide extremes, but both are always represented.

4. *a*) The textbook is most commonly used as a basis of assignments to be supplemented by required collateral readings, but a considerable proportion of schools report a freer use of it, i.e., as a syllabus in connection with collateral readings.

b) Generous use seems to be made of periodicals, reports of various legislative bodies and of public and private organizations, fuller treatises on political science, and prepared supplementary readings.

c) Teachers avail themselves of the use of a wide range of special methods and devices for adding interest and value to the work. Some report co-operation with local civic, commercial, and other bodies and authorities.

5. The main purpose in the teaching of civics is related to its practical value as preparation for citizenship.

C. Economics

I. DISTRIBUTION OF RESPONSES TO THE INQUIRY

The responses to the inquiry in economics have come from 40 teachers in schools distributed as follows:

State	Number of Schools
Colorado	2
Illinois	8
Indiana	1
Iowa	4
Kansas	2
Michigan	4
Minnesota	2
Missouri	3
Montana	1
Nebraska	3
North Dakota	1
Ohio	4
Oklahoma	1
South Dakota	1
Wisconsin	3
Total	40

II. THE OFFERING

YEARS IN WHICH ECONOMICS IS TAUGHT

The years in which the course in economics appears in the schools from which reports have come are presented in Table LXXIII. It will be seen that, although frequently appearing in the third year, it is predominantly a fourth-year subject.

TABLE LXXIII

YEARS IN WHICH THE COURSE IN ECONOMICS APPEARS

Year or Years	Number of Schools
Second	1
Third	5
Fourth	25
Third or fourth	6
"Elective" or "unclassified"	3
Total	40

TIME ELEMENT

Length of the course.—Of the 39 schools that give information as to the number of weeks in the course, 1 reports a course of 12 weeks; 32, courses of a half-year of 18–20 weeks; and 6, a full year of 36 or more weeks.

Periods per week and length of periods.—The number of periods per week allotted to economics is, with 2 exceptions, five. One of the schools varying from the usual practice reports but a single period, the other, three periods. The lengths of periods are presented in Table LXXIV. The periods are with a small proportion of exceptions 40–45 minutes in length. The 3 schools reporting the longest periods state that these include time for study.

TABLE LXXIV

LENGTH OF CLASS PERIODS IN ECONOMICS

Length of Period in Minutes	Number of Schools
40	7
42	2
45	24
50	3
55	1
60	2
80	1
Total	40

III. ORGANIZATION OF THE COURSE

THE DIVISION OF TIME BETWEEN THEORY AND THE HISTORICAL AND DESCRIPTIVE ASPECTS OF ECONOMICS

There is no approach to common practice in the fractional proportion of the total time devoted (1) to theory and (2) to the historical and descriptive aspects of the course in economics. The part reported as being allotted to the former ranges from one-fourth to four-fifths, the modal practices being one-third (6 schools), one-half (7 schools), and three-fourths (5 schools). Consequently the part devoted to the latter aspects ranges between one-fifth and three-fourths, with the modal practices at two-thirds, one-half, and one-fourth.

PROGRAMS OF ECONOMIC REFORM

The ideals of individual and social welfare are being recognized by approach to them through a study of programs of economic reform. The number of teachers giving attention to such programs is as follows:

Organized labor	37
Single tax	34
Socialism	33
Total number of responses to questionnaire	40

In addition, one to several teachers name these as receiving attention in their courses: taxation, saving, capital, monopolies, modern business methods, welfare work, public utilities, child labor, equality in wage, and moral aspects of economics.

IV. METHODS

HOW TEXTBOOKS ARE USED

Ten teachers report that they use the textbook as the main body of the course with little or no collateral reading, 24 report its use as the basis of assignments to be supplemented by required collateral readings, and 1 reports its use on the same basis as other readings of the course. The 3 remaining teachers report two of the

uses here named, probably at different points in the course. Thus, for the most part, teachers seem to follow the text rather closely.

AMOUNT OF REQUIRED COLLATERAL READING

The approximate number of pages of collateral reading required per semester ranges from 50 to 600. Of the 29 teachers making replies that may be tabulated, 21 report from 100 to 250 pages. We are probably not wrong in saying that some of the 8 teachers who make no answer require no collateral reading. Three others "cannot say."

EMPHASIS ON LOCAL ECONOMIC PROBLEMS AND CONDITIONS

Thirty-three of the 40 teachers say that they stress local economic problems and conditions, 2 say that they do not, and 5 do not answer. The methods of making such local applications are reports of trips, visits, and investigations of local establishments.

V. AIMS

The only information which this investigation revealed with reference to the aims in courses in economics is to be found in the answers to the question, "Is the subject as taught intentionally adapted to the needs of any particular vocation?" Five of the teachers who answer in the affirmative report that the course aims to prepare for commercial pursuits, while another speaks of preparation for teaching.

VI. SUMMARY

1. The high-school course in economics appears in the third and fourth years, more commonly in the latter.

2. *a*) Although usually a half-year in length, the course sometimes extends through a full school year.

b) There are more commonly five 40- or 45-minute class periods per week in the course.

3. *a*) All courses contain work in both (1) theory and (2) the historical and descriptive aspects, but there is no common practice in the proportion of the total time devoted to either.

4. Attention is given in practically all schools to various programs of economic reform.

5. The textbook is most commonly used as the basis of assignments to be supplemented by required collateral readings, although some teachers follow the text more closely, requiring little or no collateral reading.

6. Emphasis on local economic problems and conditions is common.

7. In relatively few schools is the subject intentionally adapted to the needs of any particular vocations. Where it is so taught, the teachers usually aim at preparation for commercial pursuits.

CHAPTER VI

THE VOCATIONAL SUBJECTS

A. Manual Training and Mechanical Drawing

I. DISTRIBUTION OF RESPONSES TO THE INQUIRY

Responses to the inquiry in manual training were made by 100 teachers distributed as follows:

State	Number of Schools
Colorado	2
Illinois	22
Indiana	7
Iowa	5
Kansas	10
Michigan	4
Minnesota	12
Missouri	8
Nebraska	5
North Dakota	5
Ohio	6
Oklahoma	4
South Dakota	3
Wisconsin	7
Total	100

II. THE OFFERING AND ITS ORGANIZATION

EXTENT OF THE OFFERING IN NUMBER OF YEAR-COURSES

The number of year-courses reported by teachers of manual training is indicated in Table LXXV. The term year-course is here to be understood as signifying a course extending through a year without regard to its time allotment per week. The time allotment per week will be reported in another place. The offerings in shopwork are seen to range from 1 to 7½ year-courses with the modal practices at 2, 3, and 4. The number of year-courses in mechanical drawing, exclusive of architectural drawing, is fairly evenly divided among the four practices of 1, 2, 3, and 4. The offering in architectural drawing is seen to extend in 28 schools through a single year and in half this number through two years.

Few schools offer more than two years of architectural drawing. Such schools as do not answer may safely be included with those

TABLE LXXV

NUMBER OF YEAR-COURSES OFFERED IN SHOPWORK, MECHANICAL DRAWING, AND ARCHITECTURAL DRAWING

Number of Year-Courses	Number of Schools Reporting in		
	Shopwork	Mechanical Drawing	Architectural Drawing
0	.....	1	22
1	6	20	28
2	32	27	14
3	23	19	2
3½	2	.....	.....
4	30	27	2
5	2	.....	.....
6	2	.....	.....
7½	1	.....	.....
No answer	2	6	32
Total	100	100	100

reporting no courses. More than half the schools may thus be said to make no offering in architectural drawing.

YEARS IN WHICH THE COURSES APPEAR AND NATURE OF THE OFFERING

Shopwork.—Woodwork is reported as the sole constituent of first-year courses in shopwork in 60 of the 100 schools. It is reported as a partial constituent in combination with other kinds of shopwork in 9 additional schools. In the remaining 29 schools that make answer to the question some differentiated type of shopwork is reported, usually cabinetmaking, joinery, wood-turning, or pattern-making, as sole or partial constituents, although each of the following are reported once or twice each: wood-finishing, forgework, foundry, sheet-metal work, concreting, electrical work, millwrighting, and printing.

Undifferentiated woodwork is reported in but 19 of 92 schools as the sole constituent and in but 4 schools as the partial constituent of second-year courses in shopwork. Correspondingly, the representation of the differentiated courses increases. This is true, not only of differentiated types of work in wood, already named

as appearing in the first year, with carpentry in addition, but of work in metal also, as forging, molding, sheet-metal work, and machine-shop work. Concreting and printing also continue to appear.

In but 3 of the 60 schools making answer are third- and fourth-year courses in shopwork constituted solely of undifferentiated woodwork, and this work is reported as a partial division in but 3 additional schools for each of these years. Correspondingly, the differentiations reported in the second year increase in proportionate representation. This is especially true of the various kinds of work in metal. Machine-shop work appears as the sole element in a third of the fourth-year courses reported. Carpentry is reported more frequently than in earlier courses. One school each reports millwork and a special course in automobiles in the fourth year.

Mechanical drawing.—Of the 84 schools offering first-year courses in mechanical drawing, 40 report the content merely as "mechanical drawing," sometimes in addition indicating its elementary character. Five schools report "geometrical drawing," and 5, "working drawings." The following special topics appear several times each in various combinations: projections (orthographic, isometric), machine drawing, printing and lettering, blocking-in, tracing, blueprinting, perspective, developments.

Of the 70 schools offering courses in mechanical drawing in the second year, 15 report the content merely by that name, although "design" is sometimes associated with it. Thirteen report machine drawing as the sole constituent of the course for this year, and 7, projections. The former is reported as a partial division of the courses in 7 other schools, the other branches being one or more of the following: developments, intersections of solids, projections, and geometrical drawings. The following are mentioned a few times each in various combinations: sections, penetrations, isometrics, furniture design, sheet-metal drafting, developments, model drawing, revolutions, etc.

Of the 49 schools offering third-year courses, approximately half constitute them in whole, while another seventh constitute them in part, of machine drawing. "Mechanical drawing" of a more or less advanced character is reported by 10 schools.

Projections and developments appear in 3 schools. Design appears in 3 schools.

Machine drawing and design are almost universal in the 33 schools offering fourth-year courses. "Mechanical drawing" is reported in 3 schools.

Architectural drawing.—This subject appears in the first year in but 2 schools, in the second year in 12 schools, in the third year in 28 schools, and in the fourth year in 22 schools. It is thus seen to be by practice recommended for the later years of the high school. This is no doubt due to the fact that it presupposes a knowledge of elementary mechanical drawing and that it is in nature a differentiation. The content is almost always reported as "architectural drawing," although the following subdivisions are mentioned several times each: perspective, details, floor plans, elevations, framing, moldings, roofs, blueprinting, estimating, etc.

TIME ELEMENT

The facts as to the extent of the offering in year-courses in manual training have already been presented. It remains to set forth briefly the practice as to the time allotment per week for these courses. The great variation in this respect is to be seen in the accompanying table (LXXVI), which presents the results of a

TABLE LXXVI

PERCENTAGE OF SCHOOLS FOLLOWING VARIOUS PRACTICES IN TIME ALLOTMENT PER WEEK IN SHOPWORK

Minutes per Week	Year-Courses			
	First Year	Second Year	Third Year	Fourth Year
90–150	13	8	18	12
160–250	39	38	36	40
260–360	28	29	18	18
400–450	20	25	28	30

computation of the percentages of the schools making various allotments of time per week in courses in shopwork. It may be said in conjunction with what appears in this table that well-marked modal practices appear. These are, for instance, in the first year, 225 minutes (35 schools), 270 minutes (25 schools), and 450 minutes

(11 schools). These three modal practices signify, respectively, five 45-minute, three 90-minute, and five 90-minute periods per week in the shop. The same general tendency obtains in subsequent shop courses, except that there are smaller proportions of schools reporting the 270-minute allotment, and correspondingly larger proportions reporting the 450-minute allotment.

The time allotment per week for mechanical drawing and architectural drawing may be illustrated by the percentages appearing in Table LXXVII, which presents the practice in the first-year

TABLE LXXVII

PERCENTAGE OF SCHOOLS FOLLOWING VARIOUS PRACTICES IN TIME ALLOTMENT PER WEEK IN MECHANICAL AND ARCHITECTURAL DRAWING

Minutes per Week	First-Year Course in Mechanical Drawing	Third-Year Course in Architectural Drawing
90–150	20	18
160–250	58	50
260–360	9	7
400–450	12	25

courses of the former and in the third-year courses of the latter. The facts as to these particular years are used because it is in these years that these subjects are more largely represented in the schools reporting, and they may be understood fairly to represent the facts for the courses in these subjects appearing in the other high-school years. It may be said in connection with the percentages appearing in this table that well-marked modal practices appear at 180 and 225 minutes, corresponding to two 90-minute and five 45-minute periods per week for mechanical drawing, and 225 and 450 minutes, corresponding to five 45-minute and five 90-minute periods per week in architectural drawing.

III. METHODS

MAIN KINDS OF ACTIVITIES IN COURSES IN SHOPWORK

The following kinds of activities in courses in shopwork were listed in the inquiry blank, and the teachers were asked to signify of which their courses consist: (1) the making of models, (2) the

making of practical individual projects, (3) the manufacture of commercial products in quantity, and (4) the making of community projects. Table LXXVIII contains the results of the

TABLE LXXVIII

NUMBER OF SCHOOLS REPORTING THE VARIOUS KINDS OF ACTIVITIES IN SHOPWORK

Kinds of Activities	Number of Schools Reporting
(2)	14
(1) and (2)	31
(2) and (3)	3
(2) and (4)	21
(3) and (4)	1
(1), (2), and (3)	4
(1), (2), and (4)	14
(2), (3), and (4)	2
All	6
No answer	4
Total	100

compilation of the responses to this request. The figures indicate that the practice varies greatly. It appears that in no school do activities (1), (3), and (4) form the sole type of activity of the students. The making of practical individual projects does so appear in 14 schools.

The figures in Table LXXVIII are more significant when reassembled in the following manner: type (1) appears in 55 schools; type (2) appears in 95 schools; type (3) appears in 16 schools; type (4) appears in 44 schools. It is thus seen that practical individual projects appear in practically all courses in shopwork; models form a part of the courses in somewhat more than half the schools; almost half concern themselves to some extent with the making of community projects; while a relatively small number turn out commercial products in quantity.

In the 31 schools limiting the work to types (1) and (2), the fractional proportion of time devoted to the former varies from one-tenth to four-fifths of the total time, and that devoted to the latter

from one-fifth to nine-tenths of the total. Practices appearing more commonly than others are at one-fourth, one-third, one-half, and three-fourths for type (1) and, therefore, the same fractional proportions in reverse order for type (2). There is, however, no approach to any single practice or rule. In the 21 schools reporting types (2) and (4), the time is as a rule divided into from three-fourths to nine-tenths for the former and, therefore, one-tenth to one-fourth for the latter, thus showing a marked tendency to devote a relatively large proportion to the former and a relatively small proportion to the latter. In the 14 schools adding type (1) to these two, the more common practice is one-fourth, one-half, and one-fourth of the total time to types (1), (2), and (4), respectively.

DISPOSITION OF THE CLASS PERIOD

The disposition of the class period in courses in shopwork and drawing into time for (*a*) recitation, (*b*) lecture and demonstration, and (*c*) laboratory (i.e., actual work by the student) ranges between wide extremes, but it may be said that in general (*c*) occupies either all or almost all the class time.

In shopwork about a fourth of the schools devote no time to recitation, the other modal practices being one-tenth, one-eighth, one-sixth, and one-fifth of the total time, the last two not being as well marked as the preceding. Almost all schools devote some time to lecture and recitation, the modal practices being one-tenth, one-eighth, one-sixth, and one-fifth, the first-named being the practice in 30 schools. The modal practices as to proportion of the time devoted to laboratory work are three-fourths, four-fifths, and nine-tenths.

In mechanical and architectural drawing approximately a third and a half of the schools, respectively, give no time to recitation, while the modal practices where such time is allotted are one-tenth and one-eighth. As in shopwork, in these two subjects almost all schools report some proportion of time for lecture and recitation, modal practices being one-tenth, one-eighth, one-fifth, and one-fourth. The modal practices as to proportion of laboratory work are three-fourths, four-fifths, and nine-tenths.

IV. AIMS AND PURPOSES

THE VOCATIONAL AIM

Twenty-two of the 100 teachers signify in some manner or other that the paramount aim of their work in this field is vocational, although only 12 do so unequivocally, the others adding such qualifications as, "we are going in that direction," "as far as possible," "both vocational and general," "it is so announced," "of some courses, yes."

Some of those who admit the vocational aim name the following occupations as those for which the work prepares: carpentry, pattern-making, drafting, cabinet-making, and the work of the machinist. For the most part, however, those interested in the vocational end lay more emphasis upon the general elementary preparation here possible than upon actual development of skill and ability necessary to take a place in the trades mentioned.

The following additional aims were listed in the inquiry blank, and the teachers were asked to check those which dominate the work in their subjects: (*a*) prevocational, (*b*) to develop habits of skill and industry, (*c*) to cultivate appreciation for beauty in design and articles of artistic value, (*d*) to emphasize the informational side of the work (e.g., a study of the properties of wood or metal, the principles involved in construction, etc.), (*e*) to cultivate social appreciation (interest in human activities). It will be seen in Table LXXIX that there is more generous concurrence in these

TABLE LXXIX

NUMBER OF TEACHERS CONCURRING IN VARIOUS AIMS IN MANUAL TRAINING

Aims	Number of Teachers Concurring
(*a*)	52
(*b*)	98
(*c*)	75
(*d*)	76
(*e*)	57

than in the distinctly vocational aim. The development of habits of skill and industry seems to be an all but universal aim; cultivation of appreciation of beauty in design, etc., and emphasis upon the informational side of the work are valid aims with three-fourths

of the teachers; the prevocational aim and the cultivation of social appreciation are kept in mind by more than half the teachers.

V. SUMMARY

1. *a*) The more common offerings in shopwork extend through two, three, and four years; in mechanical drawing, one, two, three, and four years; and in architectural drawing, one and two years.

b) Although shopwork is reported as undifferentiated woodwork in most schools in the first year, this proportion diminishes to a very few in the third and fourth years, the courses reported for the years following the first being in increasingly larger proportion such differentiations as cabinet-making, joinery, wood-turning, pattern-making, carpentry, forgework, foundry, sheet-metal work, machine-shop work, art-metal work, concreting, printing, etc. Various kinds of work in metal are much more in evidence in the third and fourth than in the two preceding years.

c) Undifferentiated mechanical drawing, although very frequently reported for first-year courses, gives way in subsequent courses to some sort of differentiation, more commonly machine drawing. Architectural drawing, appearing largely in the third and fourth years, is also a frequent differentiation.

d) The time allotment per week varies greatly, but modal practices are to be found in shopwork at 225 minutes (equivalent to five 45-minute periods), 270 minutes (three 90-minute periods), and 225 minutes (five 45-minute periods); in mechanical drawing they are 180 minutes (two 90-minute periods) and 225 minutes (five 45-minute periods), while in architectural drawing they are 225 minutes (five 45-minute periods) and 450 minutes (five 90-minute periods).

2. The work in shop concerns itself with the making of models in somewhat more than half, with the making of practical individual projects in almost all, with the making of community projects in almost half, and with the manufacture of commercial products in quantity in approximately a sixth, of the schools. The proportions of these types of activity vary greatly, but the making of practical individual projects consumes the larger part of the time in most schools.

3. Recitation does not find a place in the class period of many schools. Its share is almost always small where it is reported. Lecture and demonstration are almost always reported, but occupy a small fraction of the class period. Laboratory work (actual work by the student) occupies the great bulk of the period.

4. A relatively small proportion of schools make the vocational aim of manual training paramount, the more common aims being the prevocational, the development of habits of skill and industry, the cultivation of appreciation for beauty, etc., emphasis upon the informational side of the work, and the cultivation of social appreciation.

B. Home Economics and Household Art

I. Distribution of Responses to the Inquiry

Responses to the inquiry in home economics and household art were made by 63 teachers distributed in schools as follows:

State	Number of Schools
Colorado	1
Illinois	13
Indiana	12
Iowa	3
Kansas	2
Michigan	4
Minnesota	5
Missouri	3
Montana	4
Nebraska	5
North Dakota	2
Oklahoma	2
South Dakota	1
Wisconsin	6
Total	63

II. The Offering and Its Organization

Extent of the Offering

The extent of the offering in home economics and household art in the number of years of work reported may be seen in Table LXXX to range between one and eight years. The more common practices are one year (10 schools), two years (19 schools), and four years (11 schools). This offering is evenly divided between

the two fields, home economics and household art, except in 14 schools, where the respective amounts in these two fields differ by one-half or one unit. Two of these offer work in the former without offering it in the latter. Ten of them offer less work in the latter than in the former.

TABLE LXXX

EXTENT OF THE OFFERING IN HOME ECONOMICS AND HOUSEHOLD ART IN NUMBER OF YEARS OF WORK REPORTED

Years of Work	Number of Schools
1	10
1½	3
2	19
2½	3
3	6
4	11
4½	1
5	1
6½	1
8	2
Not making usable replies	6
Total number of responses to questionnaire	63

It must be said that a large number of schools—it is impossible to state the exact number on account of the manner in which the inquiry was framed, but it is at least a third of the total number—present the work in combination courses. The time devoted to the work in such courses is usually equally divided between the two fields. These combination courses may be limited to one year, or they may continue through two years, and the practice is followed even in third- and fourth-year courses, as may be seen in the following illustrations: one school offers a course in laundry and dressmaking in the third year; another, a course in millinery, dressmaking, laundry, and dietetics in the fourth year; still another, a course in sanitation, home management, and art needlework in the third year.

CONTENT OF THE COURSES IN HOME ECONOMICS

The subdivisions of the field of home economics appearing in the first and second courses aré shown in Table LXXXI. From the facts here presented it appears that plain cooking is a constant

constituent of first courses in home economics, and that meal-serving appears frequently, but that the other subdivisions do not appear at all generally in these courses. On the other hand, plain cooking all but drops out of second courses, the more frequent sole or partial constituents of these courses being fancy cooking, dietaries, meal-serving, home management, and sanitation.

TABLE LXXXI

CONTENT OF FIRST AND SECOND COURSES IN HOME ECONOMICS

Subdivisions	Number of Schools Reporting the Subdivisions as Occupying the Whole or a Part of the Course	
	First Courses	Second Courses
Plain cooking	55	7
Fancy cooking	9	20
Dietaries	9	25
Meal-serving	22	33
Marketing	12	8
Laundry	7	7
Home nursing	6	8
Home management	8	15
Sanitation	11	15
Household chemistry	3	5
Household bacteriology	.....	1
Total number of schools making usable reports	57	39

In courses more advanced than the first and second there is emphatically less uniformity of practice as to content. Home management appears as the sole or partial constituent in 11 such courses, dietetics in 2, laundry in 2, other constituents being home nursing, marketing, sanitation, and "housewifery."

CONTENT OF COURSES IN HOUSEHOLD ART

The subdivisions of the field of household art appearing in first and second courses are shown in Table LXXXII. Probably because of the nature of the work the distinction of practice between the content of first and second courses here appears to be less clear than it is between first and second courses in home economics. However, first courses in household art have as the more constant constituents of the work hand and machine sewing and work in

textiles. Other subdivisions reported with some frequency are: crocheting, embroidery and handwork, and costume design. In second courses the more frequent subdivisions are hand and machine sewing, crocheting, embroidery, costume design, and textiles. It is to be noted further that hand and machine sewing are reported with less proportional frequency in second courses than in first,

TABLE LXXXII

CONTENT OF FIRST AND SECOND COURSES IN HOUSEHOLD ART

Subdivisions	Number of Schools Reporting the Subdivisions as Occupying the Whole or a Part of the Course	
	First Courses	Second Courses
Sewing		
a) Hand	37	16
b) Machine	36	21
Textiles	26	12
Handwork		
a) Crocheting	14	8
b) Knitting	4	2
c) Embroidery	13	15
d) Tatting	.....	2
e) Weaving	5	1
f) Basketry	1	1
g) Leather tooling	.....	1
Design		
a) Handwork	9	5
b) Costume	10	10
c) House decoration	2	5
Millinery	.....	3
Dressmaking	.....	6
House decoration	7	.....
Total number of schools making usable reports	49	34

while, on the other hand, embroidery and costume and house-decoration design are reported with greater proportional frequency. Differentiations appearing in second but not in first courses are tatting, dressmaking, and millinery, of which the last two named are of some importance in the matter of distinction between first and second courses.

As in home economics, in courses in household art more advanced than the first and second there is emphatically less uniformity of practice as to content. Differentiations appearing as sole

or partial constituents of these advanced courses are: millinery in 7 schools, house decoration in 6, dressmaking or "tailoring" in 3, and art needlework, "home problems," and costume design in 1 or 2 schools each.

TIME ELEMENT

The data available for purposes of indicating modal practices or other central tendencies as to amounts of time per week devoted to courses in home economics and household art are so fragmentary as not to lend themselves readily to compilation and tabulation. We are warranted in saying, however, without presenting definite facts to support the statement, that courses in home economics with the occasional exception of the work in dietaries, home management, sanitation, and household chemistry, follow, for the most part, the accepted practice of double periods for each day the work is taught. The same may be said for the courses in household art, with the exception of some work in textiles, house decoration, and design. In the exceptions noted under home economics there is some tendency in the direction of single periods with recitation in dietaries, and a more marked tendency in this direction in home management and sanitation. Household chemistry follows the usual practice in science of three single recitation and two double laboratory periods per week. Class time in textiles, house decoration, and in a few of the courses in design seems to be limited in some schools to single periods. These deviations from the common practice of double periods are in all probability justified on the ground that these particular kinds of work lend themselves more readily to assignment of work for which preparation is to be made outside the class periods, as is true of the academic subjects of study.

III. METHODS

1. *Methods in Home Economics*

DEVICES OR METHODS FOR GIVING INFORMATION

Table LXXXIII shows the extent to which teachers report the use of certain devices or methods for giving information in classes in home economics. It will be seen that all methods listed except the stereopticon are very commonly used.

PHASES OF HOME ECONOMICS RECEIVING EMPHASIS IN LECTURE OR RECITATION

The following phases of lecture or recitation were listed in the questionnaire, and the teachers were asked to number them in the

TABLE LXXXIII

NUMBER OF TEACHERS REPORTING THE USE OF VARIOUS DEVICES AND METHODS FOR GIVING INFORMATION

Device or Method	Number of Teachers Reporting
Demonstration	61
Lectures	57
Exhibits	54
Charts	52
Excursions	47
Stereopticons	7
Total number of responses to questionnaire	63

order of emphasis in their classes: cost of food, food values, composition, sanitary aspects, cost of household equipment, production and manufacture, and applications of science. The number of times each of these phases was numbered 1, 2, or 3 is indicated in Table LXXXIV. On the basis of the total number of first, second,

TABLE LXXXIV

RELATIVE EMPHASIS IN LECTURE OR RECITATION OF CERTAIN PHASES OF HOME ECONOMICS

Phase	Number of Teachers Giving the First Three Rankings			
	First	Second	Third	Total Number of First, Second, and Third Rankings
Cost of food	11	11	20	42
Food values	36	11	6	53
Composition	15	26	9	50
Sanitary aspects	4	9	16	29
Cost of household equipment	2	1	3	6
Production and manufacture	1	3	6	10
Applications of science	5	5	2	12

and third rankings received by each of these phases, the order of emphasis in the schools as a whole is: food values, first; composition, second; cost of food, third; sanitary aspects, fourth; applica-

tions of science, fifth; production and manufacture, sixth; and cost of household equipment, seventh. It is evident that the three last named are not given great emphasis.

PHASES OF HOME ECONOMICS EMPHASIZED IN THE LABORATORY WORK

The following phases of laboratory work were listed in the questionnaire, and the teachers were asked to number them in the order of emphasis in their classes: technique—preparation of food; experimental—scientific applications; housekeeping—care of laboratory; serving of meals; and demonstration. The balloting has been compiled and is reproduced in Table LXXXV. An

TABLE LXXXV

RELATIVE EMPHASIS IN LABORATORY WORK OF CERTAIN PHASES OF HOME ECONOMICS

Phase	Number of Teachers Giving the Following Rankings				
	First	Second	Third	Fourth	Fifth
Technique	51	7	1	2	0
Experimental	9	10	16	14	2
Housekeeping	8	34	15	4	0
Serving of meals	2	8	24	24	3
Demonstration	0	0	3	11	33

inspection of the figures will indicate that, if these phases are placed in the order of the general trend of the emphasis, this order will be: technique, first; housekeeping, second; experimental, third; serving of meals, fourth; and demonstration, fifth.

TYPES OF LABORATORY ACTIVITY

Fifty-two of the 63 teachers report that students prepare individual portions in the laboratory, 10 report the preparation of both individual and family portions, while 1 teacher reports the preparation of individual, family, and institutional portions ("rarely" for institutional). The preparation of individual portions is thus the almost exclusive type of laboratory activity.

CREDIT FOR HOME WORK IN HOME ECONOMICS

Of the 63 teachers reporting, 43 say definitely that they do not give credit for home work in home economics, 16 say "yes," one says "in a few cases," and another "will do so next semester." Two teachers do not answer. Of the 16 who answer unequivocally in the affirmative, 8 report in the following terms, indicating that the recognition given affects the term or semester grade: "about one-sixth," "4 per cent," "5 per cent," "5 per cent on term grade," "10 per cent," "one-fifth," "one-third on 6 weeks' grade," and "25 per cent." Three report granting one-fourth of a unit of credit. Other responses are indefinite.

CORRELATION OF HOME ECONOMICS WITH OTHER SUBJECTS

Teachers were asked to signify, by single checking, those of the high-school subjects listed in Table LXXXVI with which they make definite efforts to correlate the work in home economics and, by double checking, those subjects with which the correlation is most intimate.

TABLE LXXXVI

NUMBER OF TEACHERS MAKING EFFORTS TO CORRELATE HOME ECONOMICS WITH VARIOUS OTHER HIGH-SCHOOL SUBJECTS

Correlates	Number of Teachers		Correlates	Number of Teachers	
	Reporting Efforts to Correlate	Reporting Intimate Correlation		Reporting Efforts to Correlate	Reporting Intimate Correlation
Botany	24	5	General science	21	6
Biology	16	1	Geography	11	2
Physiology	22	5	History	14	1
Hygiene	21	25	Civics	10	1
Chemistry	22	26	Economics	19	7
Physics	25	8	English	29	5

Scrutiny of this table makes evident (1) that correlation is being attempted with a very wide range of subjects, and (2) that hygiene and chemistry are the subjects with which practice indicates that it is possible to make such correlation most intimate.

2. *Methods in Household Art*

DEVICES AND METHODS FOR GIVING INFORMATION

Table LXXXVII shows the extent to which teachers report the use of certain devices or methods for giving information in classes

TABLE LXXXVII

NUMBER OF TEACHERS REPORTING THE USE OF VARIOUS DEVICES AND METHODS FOR GIVING INFORMATION

Device or Method	Number of Teachers Reporting
Demonstration	51
Lectures	55
Exhibits	53
Charts	45
Excursions	26
Stereopticons	6
Total number of responses to questionnaire	63

in household art. All the devices listed, except the stereopticon, are frequently used.

PHASES OF HOUSEHOLD ART RECEIVING EMPHASIS IN LECTURE OR RECITATION

The following phases of lecture or recitation were listed in the questionnaire, and the teachers were asked to number them in the order of emphasis in their classes: design, industrial conditions, and historic development. The results of balloting appear in

TABLE LXXXVIII

RELATIVE EMPHASIS IN LECTURE OR RECITATION OF CERTAIN PHASES OF HOUSEHOLD ART

Phase	Number of Teachers Giving These Rankings		
	First	Second	Third
Design	29	8	5
Industrial conditions	11	25	7
Historic development	4	12	21

Table LXXXVIII. The general trend of emphasis will be seen to follow the order in which the phases have just been named.

PHASES OF HOUSEHOLD ART EMPHASIZED IN LABORATORY WORK

The two following phases of household-art laboratory work were named in the questionnaire, and the teachers were asked to signify which has greater emphasis in their classes: technique—manipulation of tools and materials; design—inventive use of tools and

TABLE LXXXIX

RELATIVE EMPHASIS IN PHASES OF LABORATORY WORK IN HOUSEHOLD ART

Phase	Number of Teachers Giving These Rankings	
	First	Second
Technique	49	1
Design	1	45

materials in making designs. The results of the balloting appear in Table LXXXIX and indicate very definitely that the order of emphasis is that in which we have named the phases.

TYPES OF PROBLEMS

Teachers were asked to report which of three types of problems, viz., (*a*) models, (*b*) individual problems, and (*c*) community problems, occupy the time of students in their classes in household

TABLE XC

NUMBER OF TEACHERS REPORTING THE USE OF THE THREE TYPES OF PROBLEMS IN HOUSEHOLD ART

Subject	Number of Teachers Reporting the Three Types of Problems					
	(*a*)	(*b*)	(*c*)	(*a*) and (*b*)	(*b*) and (*c*)	(*a*), (*b*), (*c*)
Handwork	3	19	.....	14	2	7
Sewing	1	27	1	12	5	7
Costume design	2	21	.....	8	5	2
Home decoration	5	11	3	3	8	2

art. The responses as tabulated (see Table XC) indicate that models do not often appear as the sole type of problem in these classes, although they are frequently reported with individual

problems; that the latter frequently appear as the sole type of problem, this being the most common of all practices; and that, except in home decoration, where the proportion is somewhat larger than for the other subjects, community problems do not constitute more than a rather infrequent type of activity.

CREDIT FOR HOME WORK IN HOUSEHOLD ART

The situation as to credit granted for home work in household art is essentially the same as that reported above for home economics.

CORRELATION OF HOUSEHOLD ART WITH OTHER SUBJECTS

Teachers were asked to signify, by single checking, those of the high-school subjects listed in Table XCI with which they make definite efforts to correlate the work in household art and, by double checking, those subjects with which the correlation is most

TABLE XCI

NUMBER OF TEACHERS MAKING EFFORTS TO CORRELATE HOUSEHOLD ART WITH VARIOUS OTHER HIGH-SCHOOL SUBJECTS

Correlates	Number of Teachers	
	Reporting Efforts to Correlate	Reporting Intimate Correlation
Chemistry	24	13
Home management	18	18
Art	27	18
History	25	4
Literature	18	2

intimate. Scrutiny of this table makes evident that correlation is being attempted by a large number of teachers and that the correlation may be most intimate with chemistry, home management, and art. Other subjects with which teachers report correlation are English and physiology (the "hygiene of clothing").

IV. AIMS

GENERAL AIMS

The general aims for both home economics and household art listed in the questionnaire were: (1) vocational, (2) prevocational (i.e., to assist the student in finding a vocation), and (3) general education. The teachers were asked to signify their concurrence in these aims. The extent of concurrence is shown in Table XCII.

TABLE XCII

EXTENT OF CONCURRENCE IN THE GENERAL AIMS IN HOME ECONOMICS AND HOUSEHOLD ART

Aims	Number of Teachers Concurring
(1)	3
(2)	2
(3)	38
(1) and (2)	3
(1) and (3)	2
(2) and (3)	10
Total number of responses to questionnaire	63

Aim (3) is the only one of these aims to which there is an approach to general assent, 50 teachers checking it either alone or in conjunction with one of the other aims. A total of but 15 teachers give their assent to aim (2), either alone or with one of the other aims, while but 8 assent to the vocational aim.

SPECIFIC AIMS IN HOME ECONOMICS

The following specific aims in home economics were listed in the questionnaire, and the teachers were asked to single check those receiving emphasis and to double check those receiving most emphasis in their classes: (1) to develop skill in performing household activities; (2) to give information concerning home industries and concerning materials; (3) to teach principles of economy in terms of cost and expenditure of energy; (4) to create interest in home-making; (5) to develop a scientific attitude toward household activities; (6) to create a desire to improve the living

conditions of the family or of the community; (7) to show the relation of civic and economic problems to the home. Table XCIII contains the compilation of the responses to this request. If we bear in mind that the total number of responses received was 63,

TABLE XCIII

NUMBER OF TEACHERS CONCURRING IN EACH OF THE VARIOUS AIMS IN HOME ECONOMICS

Aims	Number of Teachers	
	Emphasizing	Giving Most Emphasis
(1)	22	38
(2)	47	11
(3)	21	42
(4)	19	39
(5)	33	22
(6)	22	34
(7)	30	6

the fact that 38, 42, 39, and 34 teachers, respectively, concur in aims (1), (3), (4), and (6) as being most deserving of emphasis and that 22, 21, 19, and 22 additional teachers, respectively, emphasize them signifies that these aims are considered valid by all or practically all teachers. There is rather general concurrence also in the remaining aims.

SPECIFIC AIMS IN HOUSEHOLD ART

The following specific aims in household art were listed in the questionnaire, and the teachers were requested to single check those being emphasized and to double check those receiving most emphasis in their classes: (1) to emphasize the informational side of the work (i.e., study of the loom, modern industrial conditions, economics, etc.); (2) to develop appreciation of beauty in material and construction; (3) to develop habits of skill and industry. Table XCIV contains the compilation of responses to this request. The order of recognition given these aims is at once seen to be the reverse of that in which they have been here named.

V. SUMMARY

1. The extent of the offering in home economics and household art is one, two, or four years, but a small proportion of schools offer more. The work is usually evenly divided between the two fields, sometimes in combination, sometimes as separate courses.

TABLE XCIV

NUMBER OF TEACHERS CONCURRING IN EACH OF THE VARIOUS AIMS IN HOUSEHOLD ART

Aims	Number of Teachers	
	Emphasizing	Giving Most Emphasis
(1)	44	5
(2)	32	25
(3)	9	52

2. *a*) The most constant constituent of first courses in home economics is plain cooking, although other constituents, especially meal-serving, are reported. In second courses plain cooking largely gives place to fancy cooking, dietaries, meal-serving, home management, and sanitation as occupying the whole or a part of the course. There is no uniformity as to content of more advanced courses.

b) The distinction between first and second courses in household art is not as clear as in home economics. Hand and machine sewing are reported with less proportional frequency in second than in first courses, while embroidery and costume and house-decoration design become proportionately more frequent in the former. As in home economics, there is no uniformity as to content in more advanced courses.

3. The time allotment in this work follows, for the most part, the rule of double periods per class session. The exceptions are mostly to be accounted for by the outside preparation required by the nature of some of the subdivisions of the subjects.

4. *a*) Demonstration, lectures, exhibits, charts, and excursions are rather generally used to give information in both home economics and household art.

b) (1) Food values, composition, cost of food, and sanitary aspects are emphasized in courses in lecture and recitation in home economics in the order here given.

(2) Design, industrial conditions, and historic development are emphasized in courses in household art in the order here given.

c) (1) Technique, housekeeping, experiment, serving meals, and demonstration are emphasized in laboratory work in home economics in the order here given.

(2) Technique and design are emphasized in the laboratory work in household art in the order here given.

d) (1) The most common type of laboratory activity in home economics is the preparation of individual portions, family portions being prepared in a small number of schools, and institutional portions scarcely at all.

(2) The type of problems with which students of household art are employed is usually individual problems, alone or in combination with models. Community problems appear to some extent.

e) Recognition of home work is given in a small proportion of schools, more commonly as a part of the term or semester grade, but also in a few instances as a fraction of a unit of credit.

f) (1) Correlation is effected in home economics with a wide range of other subjects, but is most intimate with hygiene and chemistry.

(2) In household art the correlation is most intimate with chemistry, home management, and art.

5. The most commonly recognized general aim for both home economics and household art is "general education," the prevocational aim being concurred in to some extent and the vocational aim very sparingly. There is general concurrence in the specific aims for these two fields of work.

C. Commercial Subjects

I. Distribution of Responses to the Inquiry

Response to the inquiry in the commercial subjects was made by 74 teachers in schools distributed as follows:

State	Number of Schools
Colorado	3
Illinois	11
Indiana	5
Iowa	2
Kansas	5
Michigan	15
Minnesota	6
Missouri	7
Montana	3
Nebraska	2
North Dakota	1
Ohio	4
Oklahoma	2
South Dakota	1
Wisconsin	7
Total	74

II. THE OFFERING

RANGE OF SUBJECTS OFFERED

Table XCV shows the number of times the various commercial subjects are reported by the 74 schools making answer to the inquiry in this field. It is evident that the subjects appearing

TABLE XCV

NUMBER OF SCHOOLS IN WHICH THE VARIOUS COMMERCIAL SUBJECTS ARE TAUGHT

Subjects	Number of Schools Reporting the Work
Commercial arithmetic	68
Penmanship	23
Spelling	20
Penmanship and spelling	15
Bookkeeping	69
Shorthand	69
Typewriting	69
Business English	37
Commercial law	57
Commercial geography	47
Commercial history	7
Salesmanship	5
Office practice	9
Total number of responses to questionnaire	74

most commonly in commercial curricula are commercial arithmetic, bookkeeping, shorthand, typewriting, commercial law, and commercial geography. Although it does not so appear, penmanship and spelling are also frequently reported, as each of these two subjects, in addition to being reported as indicated in the table, is reported in some instances in combination with other subjects, e.g., penmanship with bookkeeping, spelling with business English or stenography, etc. Moreover, in some schools spelling is taught only incidentally in combination with other commercial subjects. The last subject listed in the table is sometimes reported as "office training."

Several subjects in addition to those appearing in this table are reported by one or two teachers each: accounting business, banking, commercial reviews, commercial Latin (to be followed by Spanish), business methods, etc.

YEARS IN WHICH THE COMMERCIAL SUBJECTS ARE TAUGHT

The years in which the various courses appear are shown in Table XCVI. The combinations of years at the heads of the

TABLE XCVI

YEARS IN WHICH THE COMMERCIAL SUBJECTS APPEAR

Subjects	Number of Schools Reporting the Commercial Subjects in Various High-School Years								
	1	2	1, 2	3	2, 3	4	3, 4	Other Combinations of Years	Total Number Replying
Commercial arithmetic	31	14	3	....	....	....	3	.....	51
Penmanship	11	1	4	1	....	....	2	4	23
Spelling	10	1	1	....	....	1	1	.....	14
Penmanship and spelling	7	2	2	1	....	....	....	3	15
Bookkeeping	1	13	5	6	16	3	9	16	69
Shorthand	....	....	4	7	....	3	40	9	63
Typewriting	....	1	4	4	....	1	37	11	58
Business English	6	4	3	6	1	5	3	.....	28
Commercial law	....	6	....	18	....	18	6	1	49
Commercial geography	10	17	....	9	2	7	2	.....	47
Commercial history	1	1	....	1	....	2	....	.....	5
Salesmanship	....	....	....	1	....	3	....	1	5
Office practice	....	2	....	....	....	6	1	.....	9

vertical columns, i.e., "1, 2," "2, 3," and "3, 4," signify one of two practices: either that the subject under consideration extends

through both years or that the subject is elective in either of the two years. The former may be understood to be the usual practice in commercial arithmetic, penmanship, commercial law, and commercial geography, and the latter in bookkeeping, shorthand, and typewriting, while both practices may be true in business English. The numbers in the column headed "Other Combinations of Years" include reports such as "any year," "1 and 4," "2, 3, 4," and "1, 2, 3," and may be interpreted in much the same manner as has just been suggested for the two-year combinations.

The table indicates that, although sometimes reported for other years, commercial arithmetic, penmanship, and spelling are recommended by practice for the lower years of the high school, predominantly the first, that bookkeeping is most frequently found in the middle years, i.e., the second and third, and that shorthand, typewriting, commercial law, salesmanship, and office practice are usually advanced high-school subjects. The year-places of business English, commercial geography, and commercial history have not been so well determined by practice, although there is some tendency to place the second subject in the second year.

TIME ELEMENT

Length of the courses.—The length in years or fractions of a year of the various commercial subjects is presented in Table XCVII. Commercial arithmetic is seen to be almost as frequently a half-year as it is a full-year course. The situation is similar for penmanship, although some schools extend it through two school years. When reported as a separate subject, spelling extends through either a half or a full year. A full year is more commonly allotted to the combination courses in penmanship and spelling. Bookkeeping is almost as frequently a two-year as a one-year course; in some schools it receives three years. Shorthand and typewriting each more frequently extend through two than through a single year. Business English is most frequently a half-year course, although in some cases extending through one and even two years. The remaining courses listed in the table—commercial law, commercial history, salesmanship, and office practice—are all predominantly half-year subjects.

Length of class periods.—The lengths of class periods in commercial subjects have been compiled and are presented in Table

TABLE XCVII

LENGTH OF COURSES IN COMMERCIAL SUBJECTS

Subjects	Number of Schools Reporting Various Lengths							
	Less than ½ Year	½ Year	1 Year	1½ Years	2 Years	3 Years	4 Years	Total Replying
Commercial arithmetic	2	22	29	.....	.....	.....	.....	53
Penmanship	1	9	9	.....	4	.....	.....	23
Spelling	1	7	6	.....	.....	.....	.....	14
Penmanship and spelling	.....	4	10	.....	.....	.....	.....	14
Bookkeeping	1	2	27	9	24	5*	.....	68
Shorthand	.....	1	18	5	34	3	1	62
Typewriting	.....	.....	15†	5	34	.....	2	56
Business English	.....	18	7	1	2	.....	.....	28
Commercial law	1	44	5	.....	.....	.....	.....	50
Commercial geography	1	38	7	.....	.....	.....	.....	46
Commercial history	.....	6	1	.....	.....	.....	.....	7
Salesmanship	.....	4	1	.....	.....	.....	.....	5
Office practice	1	4	1	.....	.....	.....	.....	6

* One reports 2½ years. † One reports 1½ years.

XCVIII, which shows the number of schools following each of the various practices. In explanation of the time-lengths placed at the head of the columns it may be said that "40–45" almost always means 40- or 45-minute periods; 50 and 55, usually 50; and 80 and 85, usually 80. The table shows that the most common practice in all subjects listed is the 40- or 45-minute period. A number of additional schools report 50, 55, 60, and 65 minutes. Only in bookkeeping, shorthand, and typewriting do longer periods become at all common; and in the subject first named the practice of longer periods is fairly as common as that of the shorter periods.

The reader may be inclined to raise the question whether the shorter periods in the three subjects last named do not appear more frequently in the longer offerings and the longer periods in the shorter offerings. The fact that the long periods appear with approximately equal frequency in both long and short courses may

be illustrated by the following citation from the facts concerning time allotment in bookkeeping: 15 of the 24 schools reporting

TABLE XCVIII

LENGTH IN MINUTES OF CLASS PERIODS FOR COMMERCIAL SUBJECTS

Subjects	Number of Schools Reporting								
	Less than 40 Minutes	40–45 Minutes	50 and 55 Minutes	60 and 65 Minutes	70 Minutes	80 and 85 Minutes	90 Minutes	100 and 120 Minutes	Total Making Usable Replies
Commercial arithmetic	.....	47	3	1	.....	2	.....	.....	53
Penmanship	1*	19	1	1	.....	.....	.....	.....	22
Spelling	3†	9	1	.....	.....	1	.....	.....	14
Penmanship and spelling	.....	12	.....	2	.....	.....	.....	.....	14
Bookkeeping	.....	26	3	4	.....	19	14	2	68
Shorthand	.....	48	4	5	.....	5	.....	.....	62
Typewriting	.....	34	3	5	1	5	7	2	57
Business English	.....	19	3	3	.....	2	1	.....	28
Commercial law	.....	42	2	4	.....	2	.....	.....	50
Commercial geography	.....	38	4	2	.....	2	.....	.....	46
Commercial history	.....	6	.....	1	.....	.....	.....	.....	7
Salesmanship	.....	3	1	.....	.....	1	.....	.....	5
Office practice	.....	3	1	.....	.....	2	.....	.....	6

* 25 minutes. † Two report 15 minutes, and the other, 30 minutes.

two-year offerings in this subject and 11 of the 27 reporting offerings extending through but a single year report periods 80, 85, or 90 minutes in length.

III. ORGANIZATION AND CONTENT OF COURSES

COMMERCIAL ARITHMETIC

The main topics reported for courses in commercial arithmetic are listed in Table XCIX in the order of their frequency of appearance. It will be seen that percentage and its applications, fractions, and the fundamental operations are the most constant constituents of the work. Among the applications of percentage to which attention is given, interest is mentioned by 37 teachers, commercial discounts by 23, bank discounts by 14, stocks and bonds by 12, commission and brokerage by 12, profit and loss by 11,

taxes by 9, insurance by 8, and savings banks, building and loan associations, investments and dividends, and partial payments by 1 to 5 each. Among the additional main topics reported once or twice each are: storage, commercial paper, cash and ledger balances, invoices, graphs, etc.

TABLE XCIX

MAIN TOPICS IN COMMERCIAL ARITHMETIC

Topic	Number of Teachers Reporting
Percentage and its applications	53
Fractions	42
Fundamental operations	39
Denominate numbers	18
Practical measurements	17
Bills and accounts	15
Short methods	13
Partnership	11
Aliquot parts	10
Rapid calculation	7
Mensuration	7
Equation of accounts	6
Ratio and proportion	6
Methods for proving work	4
Marking goods	3
Total number of schools reporting courses	68

A few teachers without listing the main topics frankly state that they "follow the text." A comparison of the topics reported in a random sampling of other responses with the texts named indicates that most of these also very largely follow the text.

PENMANSHIP

With few exceptions the systems of penmanship reported by the schools are the "muscular" or "arm-movement" systems, a small number of teachers reporting that they teach their own modifications of these systems.

SPELLING

When spelling is taught as a formal subject, the source of word-lists for study, with very few exceptions, is commercial

spelling-books. Two teachers report lists of words commonly misspelled in business.

BOOKKEEPING

The main topics reported for the elementary courses in bookkeeping are listed in Table C in the order of their frequency of

TABLE C

MAIN TOPICS IN ELEMENTARY COURSES IN BOOKKEEPING

Topics	Number of Teachers Reporting
Journalizing	42
Ledger and ledger posting	36
Financial statement	36
Classification of debit and credit items	32
Business papers and forms	26
Cash book or account	25
Salesbook	23
Closing entries	15
Trial balance	15
Purchase book	14
Loss and gain statement	8
Not making usable replies	9
Total number of schools reporting courses	69

appearance. The more constant topics are seen to be journalizing, ledger work, financial statements, classification of debit and credit items, business papers and forms, cash book or account, and salesbook. Additional topics reported by 1 to 5 teachers each are notes book, invoice book, and other special books and accounts, checks and proofs, changing from single to double entry, penmanship, retail business, wholesale business, jobbing business, labor-saving devices, etc. Thirteen teachers report "accuracy," and 11, "neatness."

The main topics reported for the advanced courses in bookkeeping are listed in Table CI in the order of their frequency of appearance. Those appearing more commonly are seen to be specialized columns and specialized books, specialized business, more advanced statements, and controlling accounts. The lines of specialized business in which work is reported are corporations

(11 schools), factory (9 schools), retailing (9 schools), wholesaling (8 schools), banking (7 schools), commission (6 schools), jobbing (2 schools), railroad (1 school), and real estate (1 school). Topics other than those listed in the table reported by 1 to 4 teachers each

TABLE CI

MAIN TOPICS IN ADVANCED COURSES IN BOOKKEEPING

Topics	Number of Teachers Reporting
Special columns and special books	30
Specialized business	12
More advanced statements	11
Controlling accounts	11
Classification of accounts	7
Accounting	7
Voucher system	5
Changing from proprietor to partnership	5
Not making usable replies	5
Total number of schools reporting advanced courses	42

are notes and drafts, single entry, auditing, discounting, separation of property investment from property expense, filing devices, time-saving devices, shipping, card and loose-leaf ledgers, business papers and forms, difficult journalizing, pay-rolls, etc.

A comparison of the more constant subdivisions of elementary and advanced courses brings out the fact that the essential difference seems to be the introduction into the latter of more books ("special columns and special books") and of work in special business, with as much accounting as a high-school student may be expected to be capable of handling.

TYPEWRITING

It needs only to be pointed out here that all schools reporting typewriting in their commercial curricula signify that the "touch" system is required.

BUSINESS ENGLISH

Table CII presents in the order of their frequency of appearance the main topics reported by the teachers as constituents

of their courses in business English. The subdivisions more commonly appearing are: grammar review, letter-writing, business correspondence, punctuation, advertising, and oral composition. It will be seen that several of these are not mutually exclusive.

TABLE CII

MAIN TOPICS IN BUSINESS ENGLISH

Topics	Number of Teachers Reporting
Grammar review	17
Letter-writing	15
Business correspondence	14
Punctuation	10
Advertising	8
Oral practice or composition	7
Written composition	5
Spelling	4
Not making usable replies	5
Total number of schools reporting courses in the subject	37

Among the additional commercial topics reported once or twice each are: salesmanship, banking, business practice, telegrams, telephone, enlargement of business vocabulary, business forms, and filing of business correspondence.

COMMERCIAL LAW

The main topics of the courses in commercial law in the order of their frequency of appearance are listed in Table CIII. The first 9 topics in the list, viz., contracts, negotiable instruments, agency, bailment, partnership, corporations, personal property, real property, and insurance, appear more frequently than others. Among other topics reported once or twice each are securities, leases, master and servant, joint stock company, estates, patents, copyrights, trademarks, and common carriers.

COMMERCIAL GEOGRAPHY

The proportion of the total time of the courses allotted to the study of the United States in courses in commercial geography

ranges from one-fifth to seven-ninths. In 30 of the 39 schools making responses that can be tabulated this proportion is included within the limits one-half and one-fourth.

TABLE CIII

MAIN TOPICS IN COMMERCIAL LAW

Topics	Number of Teachers Reporting
Contracts	42
Negotiable instruments	36
Agency	35
Bailment	31
Partnership	31
Corporations	29
Personal property	28
Real property	27
Insurance	21
Court jurisdiction and procedure	7
Pleading and practice	4
Guaranty	4
Credits and loans	4
Not making usable replies	7
Total number of schools reporting this course	57

IV. METHODS

EFFORTS TO GIVE STUDENTS ACTUAL BUSINESS EXPERIENCE

Reports from 28 of the 74 schools making answer to the inquiry in commercial subjects do not respond to the question as to what efforts are being made to give the students actual business practice and experience. Thirteen report that work is being done for some part of the school system, either in the offices of the principal or superintendent, or for teachers, supervisors, etc. Four report that students are "loaned" occasionally to outside business offices, while 3 others state that work is brought in by business men of the community. The most striking efforts are made by 5 teachers, who report part-time employment for a great many students in the last year of the course, either during the entire year or during the last term or semester. The report from one school is sufficiently interesting to be quoted in full: "Advanced pupils

work in offices afternoons and Saturdays. Receive credit. Paid $1 to $6 per week. Usually stay after graduation as full-time employees." Two mention bookkeeping in connection with the high-school lunch counter and cafeteria. Most of the remaining responses refer to efforts to make the classroom work more practical by the introduction of work similar to that done in business offices.

Methods in the Several Subjects

COMMERCIAL ARITHMETIC

The fractional part of the total time devoted to commercial arithmetic that is allotted to drill is reported by 54 teachers. This proportion ranges from one-fifteenth to three-fourths. The modal practices are one-fourth (14 schools), one-third (8 schools), and one-half (15 schools).

Teachers were asked to report any efforts to make the work in commercial arithmetic "touch life and breathe the spirit of business." Of the 68 teachers reporting the course, 22 make no answer to this question. Twenty-six speak of "practical," "real," or "actual" problems. What is meant by these expressions may be understood from the explanatory statements of a few teachers that their problems are drawn from "data taken from actual experience," and from "factories and offices." Unclassifiable replies are: "Commercial students manage the financial side of high-school cafeteria," "use catalogues of various firms in city for bill work . . . . ," "old invoices from wholesale houses used," "discipline same as office," "consultation with business men," etc.

PENMANSHIP

Penmanship is reported as being correlated with spelling in 5 schools, with bookkeeping in 13, with all written school work in 8, and with two to several commercial subjects in various combinations in 5.

SPELLING

In 22 schools not reporting the teaching of spelling as a formal subject, either when taught separately or in combination with some other subject, as penmanship or business English, it is taught incidentally. Furthermore, in 24 of those schools reporting it as a

formal subject it is also incidentally taught. A large number of those reporting this incidental teaching of spelling say that such attention is given in "all" subjects, while others report it in one or more of the following: typewriting, shorthand transcriptions, and business English. It is evident that the principle of correlation is emphatically operative between spelling and other commercial subjects.

SHORTHAND AND TYPEWRITING

The following opportunities for practical experience in shorthand are offered to the students in the high schools from which reports have been received: 28 report correspondence for members of the faculty or in the offices of the superintendent or principal, 5 mention part-time employment, 7 speak of letters from outside business offices, and 2 require the taking of lectures, sermons, or pleas. The situation for typewriting is very much the same as for shorthand as to work for the school staff, part-time employment, and work for outside business offices. A few teachers each report copying material of various sorts, duplicating, use of mimeograph, addressing envelopes, filling in blanks, work on the school paper, etc.

BUSINESS ENGLISH

Opportunity for practical experience in business English is offered in approximately a third of the schools reporting the course. This takes the form of various kinds of work for the schools, e.g., letters, advertisements, bulletins, circular announcements, and invitations. Two reports are quoted: "Each student selects a business in which he is interested, studies it, talks with men and women engaged in it, and writes a number of letters as though he were engaged in the business"; "We secure from the leading business men in the city letters which they consider especially good and study these in class."

COMMERCIAL LAW

Ten teachers report that they make some use of the case system in teaching commercial law; 6 make use of the statutes of their respective states; 5 report talks by practicing lawyers. Among other special methods used by two teachers each are:

study of reports on cases; organizing a corporation; holding a moot court; drawing up partnership agreements; making out leases, deeds, bills of sale, mortgages, etc.

COMMERCIAL GEOGRAPHY

Of the 47 teachers reporting the course in commercial geography, 35 say that they adapt the work to local conditions, 5 say "no," and a few report in indefinite terms.

TABLE CIV

NUMBER OF TEACHERS REPORTING THE USE OF VARIOUS MATERIALS, DEVICES, AND METHODS

Materials, Devices, and Methods	Number of Teachers Reporting
Map drawing	38
Curves and diagrams	23
Collateral readings	38
Newspapers	37
Commercial periodicals	28
Excursions	22
Stereopticon	21
Pictures	25
Museum	23
Total number of schools reporting the course	47

Table CIV shows the extent to which certain materials, devices, and methods are used in classes in commercial geography. It is to be noted that all are in frequent use.

COMMERCIAL HISTORY

Similar proportions of teachers of commercial history as of commercial geography report the use of the following materials, devices, and methods: map-drawing, the making of curves and diagrams, collateral readings, pictures, and stereopticons.

V. AIMS

GENERAL AIMS

The following aims were listed in the questionnaire in commercial subjects, and the teachers were asked to signify their assent by checking those that dominate their work: (1) "to give a

general preparation for a business career"; (2) "to furnish the technique requisite for specific business (clerical) positions"; (3) "to give such training as will look toward the students' later occupying business positions of responsibility"; (4) "to train for the needs of large business organization and a resulting specialization of occupation." The results of the balloting on these aims is reproduced in Table CV. The first aim wins general assent. Less than

TABLE CV

NUMBER OF TEACHERS CONCURRING IN THE AIMS IN THE COMMERCIAL SUBJECTS AS STATED IN THE QUESTIONNAIRE

Aim	Number of Teachers Concurring
(1)	69
(2)	34
(3)	20
(4)	4

half the teachers concur in the second aim, and an even smaller proportion in the third. As is to be expected in the light of the almost universal concurrence in aim (1), aim (4) wins few supporters.

Those who subscribed to aim (2) were asked to name the occupations for which the work specifically prepares the student. A few others who did not directly signify concurrence in the aim also complied with this request. The responses were as follows:

Bookkeeping	39 schools
Stenography	31 schools
General office work	5 schools
"Clerical"	4 schools
Typists	3 schools

Accounting, civil service, bank work, copying, amanuensis work, and preparation for teaching commercial work are each named once or twice.

SPECIFIC AIMS

Only a small proportion of teachers report a quality requirement in penmanship in terms of recently developed scales for the measurement of handwriting. Nine teachers say that they use the Ayres scale, but only 4 specify the point on the scale that must

be attained. Of these, 1 requires 70 and 3 require 90. Five report that they use the Thorndike scale, only 2 naming the point on the scale that must be attained, these placing it at 14.

The speed requirement in penmanship is definitely stated in letters per minute by only 7 teachers, their answers ranging from 20 to "75–90" letters per minute.

The speed requirement in shorthand ranges from 70 to 150 words per minute. Modal practices are 80 words (6 schools), 100 words (29 schools), and 125 words (6 schools). Two schools report 60 and 75 words in the first year and 120 and 125 words, respectively, in the second year. A few schools report "no definite standard" or "no speed requirement."

The standard of accuracy in shorthand ranges from 75 to 100 per cent. The more common practices are 85 per cent (5 schools), 90 per cent (12 schools), 95 per cent (9 schools). Of the total of 40 who give answers that may be stated in percentages, 15 are found in the limits 95–100 per cent. Some teachers report in such indefinite terms as "nearly perfect," or "credit given on a passing mark as in other subjects."

The speed requirement in typewriting ranges from 25 to 80 words per minute. The more common practices are 35 words per minute (4 schools), 40 words per minute (22 schools), 50 words per minute (6 schools), and 60 words per minute (4 schools).

The standard of accuracy in typewriting ranges from 65 to 100 per cent. The more common practices are 80 per cent (4 schools), 90 per cent (5 schools), 95 per cent (5 schools), and 100 per cent or "perfect" (11 schools). Twenty of a total of 36 schools making answers that may be compared set up standards of from 95 to 100 per cent.

VI. SUMMARY

1. The subjects more commonly appearing in commercial curricula are commercial arithmetic, penmanship, spelling, bookkeeping, shorthand, typewriting, commercial law, and commercial geography.

2. Commercial arithmetic, penmanship, and spelling are recommended by practice for the earlier years of the high school, bookkeeping for the middle years, and shorthand, typewriting,

commercial law, salesmanship, and office practice for the later years. The year-places of business English, commercial geography, and commercial history have not been so well established by practice.

3. *a*) Commercial arithmetic, penmanship, and spelling, the two last-named when taught as separate subjects, are usually either half-year or full-year courses. Bookkeeping is usually a one-year or a two-year course. Shorthand and typewriting extend more commonly through two school years. The remaining subjects are more commonly offered as half-year courses.

b) Class periods in commercial subjects commonly extend through 40–60 minutes, except in bookkeeping, shorthand, and typewriting, in which, especially in the subject first named, they frequently extend through 80 or 90 minutes.

4. *a*) The more constant constituents of courses in commercial arithmetic are: percentage and its applications, fractions, and the fundamental operations.

b) With few exceptions the systems of penmanship taught are "muscular" or "arm movement."

c) Formal instruction in spelling is limited to word-lists drawn from spelling texts.

d) While elementary courses in bookkeeping concern themselves more frequently with journal and ledger work, financial statements, business papers and forms, and cash and sales books, the main content of advanced courses is more often special columns and books, specialized business, more advanced statements, and controlling accounts.

e) The "touch" system is universally required in typewriting.

f) Business English is largely concerned with grammar review and correspondence.

g) The main topics in courses in commercial law are contracts, negotiable instruments, agency, bailment, partnership, corporations, personal and real property, and insurance.

h) One-half to three-fourths of the total time in courses in commercial geography is devoted to the United States.

5. *a*) Efforts are being made in a number of schools to give students actual business experience.

b) Large fractional proportions of the total time, usually one-fourth to one-half in commercial arithmetic, are being devoted to drill. Many teachers aim to make the work "touch life and breathe the spirit of business" by the introduction of "practical" or "real" problems.

c) The principle of correlation is notably operative between spelling and other commercial subjects.

d) Commercial geography is in almost all schools adapted to local conditions. Many schools make use of a wide range of materials, devices, and methods.

6. The only aim of the commercial subjects in which almost all teachers concur is to give a general preparation for a business career. Almost half the teachers agree that the work aims to furnish the technique requisite for specific business (clerical) positions, these being most frequently reported as bookkeeping and stenography.

7. *a*) There is no approach to agreement as to quality and speed requirements in penmanship.

b) The modal speed requirement in shorthand is 100 words per minute. The modal accuracy requirement is 95–100 per cent.

c) The modal speed requirement in typewriting is 40 words per minute. The modal accuracy requirement is 95–100 per cent.

CHAPTER VII

THE FINE ARTS

A. Art

I. DISTRIBUTION OF THE RESPONSES TO THE INQUIRY IN ART

Responses to the inquiry in art were made by 19 teachers in schools distributed as follows:

State	Number of Teachers Reporting
Colorado	2
Illinois	4
Indiana	3
Michigan	1
Minnesota	3
Missouri	1
Nebraska	1
Ohio	3
Wisconsin	1
Total	19

II. THE OFFERING IN ART

EXTENT OF THE OFFERING

Number of year-courses.—The number of year-courses offered in art in the schools reporting is presented in Table CVI. The

TABLE CVI

NUMBER OF YEAR-COURSES OFFERED IN ART

Number of Year-Courses	Number of Schools Reporting
1	5
2	2
2½	1
3	1
4	9
Not answering	1
Total number of responses to questionnaire	19

term year-course is here to be understood as signifying a course extending through a year without regard to its time allotment per

week. The length of the school year here reported is never less than 36 weeks. The more common practices are seen to be 1 and 4 year-courses. The courses in art are, without exception, reported as beginning in the first year of the high school.

It should be noted that in at least 3 of the 5 schools reporting a single year-course, students from any year of the high school may take the course. This, in the light of the fact that these single year-courses are without exception listed in the first year, means that students from the later years of the high school are permitted to take the work in the same divisions with students from the earlier years.

Total class time per week.—The time allotment per week in art is seen in Table CVII to vary between wide extremes. The more common practices are seen to be 80–90, 200–225, and 400–450 minutes per week, i.e., respectively, two 40- or 45-minute, five 40- or 45-minute, and five 80- or 90-minute periods per week.

TABLE CVII

NUMBER OF SCHOOLS REPORTING THE VARIOUS TIME ALLOTMENTS

Time Allotment in Minutes per Week	Number of Schools Reporting the Various Time Allotments			
	First Year	Second Year	Third Year	Fourth Year
20	.....	.....	.....	1
40– 45	3	1	2	1
60– 75	2	1	.....	.....
80– 90	5	2	2	2
200–225	4	4	4	4
400–450	3	3	2	2
Total number of schools answering	17	11	10	10

CREDIT GRANTED FOR THE WORK IN ART

The amount of credit for work in art accepted toward graduation conforms with few exceptions to the extent of the offering, from a small fraction of a unit to a maximum of 4 units. The rule in granting credit seems in almost all cases to be that which generally obtains in laboratory courses: two periods of work for which no outside preparation is required are considered the equivalent of a single period for which such preparation is required.

CONTENT OF THE COURSES

Table CVIII shows the extent to which various subdivisions of the work in art are reported by teachers as sole or partial constituents of their several year-courses. In addition to those subdivisions listed in the table the following are reported once each: domestic art, commercial art, lettering, and landscapes in

TABLE CVIII

NUMBER OF SCHOOLS REPORTING VARIOUS ASPECTS OF THE WORK IN ART AS SOLE OR PARTIAL CONSTITUENTS OF THE SEVERAL YEAR-COURSES IN THIS SUBJECT

Constituents of Courses	Number of Schools Reporting Various Constituents			
	First Year	Second Year	Third Year	Fourth Year
Freehand drawing	10	5	6	3
Design	9	6	5	6
Color	2	2	2	3
Craftswork	1	2	1	3
Mechanical drawing	2	.....	1	1
History of art	4	4	2	4
Total number of schools answering the question	17	11	10	9

first-year courses; landscapes and pottery in second-year courses; color theory, composition, and pottery in third-year courses; and jewelry, pottery, and interior decoration in fourth-year courses. The proportional number of appearances of certain subdivisions in the table seems to be somewhat greater in the later than in the earlier year-courses, e.g., design, color, craftswork, and history of art, but this tendency is not as manifest as we might expect. This is probably due in part to the great diversity in time allotment per week and in part to the fact that there are no well-developed sequences in art as there are in older high-school subjects.

III. ORGANIZATION

The organization of courses in art has already been in part covered in the preceding section. There are, however, two aspects of organization that may be discussed briefly at this point—the

extent of dependence upon textbooks and the manner in which work in the history of art is introduced.

DEPENDENCE UPON TEXTBOOKS

Textbooks do not dominate courses in art as do textbooks in the older high-school subjects. Six of the 19 teachers report definitely that no text is used. Of the 13 who say they use them, 3 report considerable dominance of the courses by them in these terms: "a great deal," "two-thirds of the work," "as an outline." The remaining 10 teachers use the books with great freedom, as is suggested by the following responses: "very little," "suggestions only," "for reference only."

HISTORY OF ART

History of art is introduced in connection with other work in art in 14 of the 17 schools making responses to the question on this point. The 3 others offer separate courses.

IV. METHODS

CO-OPERATION WITH OTHER SUBJECTS AND OTHER SCHOOL ACTIVITIES

The principle of correlation and co-operation is operative between art and other high-school subjects and activities in a large proportion of the schools reporting. Teachers of freehand drawing co-operate with those of science in 3 schools and with those of manual training in 1 school. Teachers of design co-operate with those of household art in 7 schools, with those of manual training in 4 schools, and with literary societies in 2 schools. Teachers of history of art co-operate with those of other history in 2 schools. The extent and nature of this correlation and co-operation may be illustrated by the following: making posters to aid other courses, designing useful household articles and artistic clothing, decoration of notebooks for other courses, study of objects with other departments, as in zoölogy, botany, etc.

CO-OPERATION IN CIVIC AND COMMUNITY PROBLEMS

Co-operation of the school department of art in civic and community problems has hardly made more than a beginning. Four schools report that this is being effected only indirectly,

and one school each reports the following: making posters for "Clean-Up Day," plans for interior decoration carried out in the homes, and designs for a factory, clubs, and a commercial association.

V. AIMS AND RESULTS

SPECIAL AIMS IN FREEHAND DRAWING AND DESIGN

The special aims which the teachers report they keep before them in freehand drawing are: to give students an additional means of expression, 6 teachers; training in observation, 5 teachers; training in recognition of beauty, 4 teachers; and technical skill, 4 teachers. Those in design are: sense of proportion, rhythm, and balance in form and color, 7 teachers; practical knowledge of design, 6 teachers. Other aims given for design relate to the development of the critical and creative faculties, artistic judgment, neatness, and observation.

CONCRETE RESULTS EXPECTED AND INFLUENCES NOTED

Five teachers state that they expect the training in design to result in better taste in house decoration, dress, and civic projects; 2, to help create a public demand for general articles of good design; and 1, to produce better workmen in any line.

Among the influences of the work in art already noted by teachers of this subject are: change in the direction of simpler dress, better material, and color harmony, 5 teachers; better combination of colors, love for good pictures, and better house decoration, 4 teachers. Other influences reported relate more to general appreciation of beauty.

VI. SUMMARY

1. *a*) The more common offerings in art are 1 and 4 year-courses, the latter constituting the offering in approximately half the schools.

b) The time allotment per week ranges between very wide extremes, the more common practices being two or five 40- or 45-minute periods or five 80- or 90-minute periods.

c) Credit is usually granted toward graduation for all the work offered and on the basis of the usual time rule applying to laboratory work.

2. There is apparent no marked distinction between the content of the earlier and of later high-school courses, although a slight tendency appears to constitute the latter with greater proportional frequency of work in design, color, craftswork, and history of art.

3. Textbooks do not dominate courses in art as they do those in the older high-school subjects.

4. History of art is most frequently taught in connection with other courses in this subject.

5. There is a marked tendency in courses in art to correlate and co-operate with other subjects and other school activities. Co-operation in civic and community problems is not so frequently effected.

6. The more common aims are: (1) in freehand drawing, to give students an additional means of expression, to train them in observation and in recognition of beauty, and to equip them with technical skill; and (2) in design, to develop a sense of proportion, rhythm, and balance in form and color and to give a practical knowledge of design.

The concrete results expected and the influences observed center around better taste in house decoration, dress, pictures, and civic projects, as well as a better appreciation of beauty in general.

B. Music

I. DISTRIBUTION OF RESPONSES TO THE INQUIRY

Responses to the inquiry in music were made by 27 teachers in schools distributed as follows:

State	Number of Teachers Reporting
Colorado	1
Illinois	2
Indiana	1
Iowa	3
Kansas	3
Michigan	1
Minnesota	5
Missouri	1
North Dakota	3
Ohio	3
Oklahoma	1
South Dakota	1
Wisconsin	2
Total	27

II. THE OFFERING

The offering in music in the high schools responding to this inquiry will be treated under four main heads, viz., (1) that of an academic character, (2) chorus singing, (3) special organizations, and (4) instruction in voice, violin, and piano. Some reference will also be made to the practice of granting school credit for work with extra-school teachers of music.

1. ACADEMIC MUSIC

Academic offerings in music are reported by only 9 of the schools from which replies have been received. Of these 9 schools, 3 report separate courses in harmony of the following extent: one, a course extending through two school years with three 45-minute recitation periods per week, the remaining 2 offering one-year courses, 1 with two 60-minute and 1 with three 65-minute periods per week. Three schools report separate year-courses in the history of music, 1 with one 45-minute, 1 with two 60-minute, and 1 with three 65-minute periods per week. The school offering the course last named is the same one reporting the year-course in harmony with three 65-minute periods per week. One school reports a course in musical theory extending through a half-year with three 40-minute class periods per week. The school reporting the two-year course in harmony offers also a year-course of one 45-minute period per week in theory and history. One school reports a "general course in musical art," consisting of theory, harmony, history, and appreciation, extending through a school year with five 55-minute periods per week. Another school reports a course in public-school music extending through a school year with two 60-minute periods per week. Still another offers a course in "elementary music, history of music, and victrola" which extends through a year with two 43-minute periods per week.

2. CHORUS SINGING

Work in chorus singing is an almost universal offering in the programs of study of the 27 schools from which responses to the inquiry in music have been received, as it is reported in 25 schools. This work is sometimes given the name "chorus singing and musical

appreciation." In 13 schools it extends through all four years of the high school, in 2 through two years, and in 4 through a single year. The answers of the remaining 6 schools do not signify the extent in years of chorus singing.

In 14 of the 25 schools the time allotment per week for this work is reported in terms sufficiently definite to be tabulated (see Table CIX). It ranges from 40 to 135 minutes. The period lengths range from 20 to 65 minutes. The number of periods per week is reported as one in 5 schools, two in 3 schools, three in 4 schools, and five in 2 schools.

TABLE CIX

TIME ALLOTMENT PER WEEK TO CHORUS SINGING

Minutes per Week	Number of Schools Reporting
40	2
45	2
60	3
65	1
75	1
80	1
90	1
100	1
125	1
135	1
Total	14

3. SPECIAL ORGANIZATIONS

The following are the special musical organizations reported and the number of schools reporting each:

Girls' glee club	22 schools
Boys' glee club	20 schools
Orchestra	20 schools
Band	7 schools
Special chorus	4 schools
Mandolin club	3 schools

The time given to rehearsal in these organizations may be illustrated by the time as reported for those 40 of these organizations (11 girls' glee clubs, 10 boys' glee clubs, 12 orchestras, 4 bands, 1 mandolin club, and 2 special choruses) for participation in whose activities the schools maintaining them grant credit.

This time element is presented in Table CX. The usual practices are 1- and 2-hour sessions.

TABLE CX

REHEARSAL TIME PER WEEK IN SPECIAL ORGANIZATIONS

Minutes per Week	Number of Schools Reporting
40	2
45	4
55	1
60	18
80	1
90	1
120	9
150	1
180	1
300	1
Indefinite	1
Total	40

4. INSTRUCTION IN VOICE, VIOLIN, AND PIANO

A single school gives individual instruction in voice, violin, and piano. It reports one 60-minute period lesson per week for this work.

CREDIT FOR MUSIC

The number of units of credit in music accepted for graduation from these schools is shown in Table CXI. The total amounts range from 0 to 4 units.

TABLE CXI

NUMBER OF UNITS OF CREDIT IN MUSIC ACCEPTED TOWARD GRADUATION

Units of Credit	Number of Schools Reporting
None	3
½	1
1	5
2	4
3	1
4	3
No answer or answer not usable	10
Total	27

Immediately following the blank space in which the teachers outlined their offerings in music of types (1) and (2) above, was the request, "Name any of the courses outlined . . . . for which credit is not granted." It is significant that 19 teachers left the space following this request blank; they grant credit for the work listed. Two others say definitely that credit is given for all the work listed. Five teachers in schools where the offering listed is all of type (2) say that no credit is given, and another that so much of the offering as is of this type is not credit work. We may thus conclude that all courses in music of the academic type and most of the courses in chorus singing are accepted toward graduation. No inquiry was made into the amount of this credit or the proportional relation of the time to the amount of credit granted.

The amount of credit granted for membership in special organizations and the proportional relation of the amount of time to the amount of credit vary greatly. This variation may be illustrated by the cases of those 18 schools (see Table CX) which report 60 minutes of rehearsal time per week for these organizations. In those 12 of these schools which make response in terms of units of credit, this amount is one-tenth of a unit (1 school), one-eighth of a unit (1 school), one-fourth of a unit (5 schools), and one-half of a unit (5 schools).

Only 4 of the 27 schools grant credit for work with extra-school teachers of music. Two others state that the matter of granting such credit is under consideration. Only 2 schools state the amount of such credit, one accepting 1 unit and the other 2 units. The credit is granted for work in voice, piano, and orchestral instruments.

III. AIMS

The following aims in music were listed in the questionnaire, and the teachers were requested to signify, by checking, those in which they concur: (1) cultivation of good musical taste and desire; (2) development of beautiful tone quality, both in speaking and in singing voice; (3) development of fluency in reading and writing music (including ear training); (4) cultivation of the musical expression of the ideas or feelings of the student;

(5) development of the social aspects through ensemble work. Table CXII indicates the general concurrence in these aims.

TABLE CXII

NUMBER OF TEACHERS CONCURRING IN THE AIMS IN MUSIC AS STATED IN THE QUESTIONNAIRE

Aim	Number of Teachers Concurring
(1)	24
(2)	23
(3)	17
(4)	18
(5)	19
Total number of responses to the questionnaire	27

IV. SUMMARY

1. The work in music is of four types: (1) that of an academic character, such as harmony, history of music, and theory; (2) chorus singing; (3) special organizations, such as glee clubs, orchestras, bands, etc.; and (4) individual instruction in voice, violin, and piano. Type (1) is offered in a third of the schools, types (2) and (3) in nearly all, and type (4) in a single school.

2. The time allotment for academic courses is usually two or three 40- to 65-minute periods per week through the year. For chorus singing it ranges from 40 to 135 minutes per week, this allotment being distributed in from one to five periods of 20 to 65 minutes in length. Special organizations very often have one 1-hour rehearsal period per week, although often they have more or less than this.

3. Credit for work in music up to a total of 4 units is accepted toward graduation in a few schools, most schools accepting less and a few none. Credit is granted for all work in music of an academic character in schools offering it. Most schools allow credit for chorus singing. About half grant some credit for membership in special musical organizations, although there is no rule as to the amount or the proportional relation of the amount of time to the amount of credit. A few schools grant credit for work with extra-school teachers of music.

4. There is rather general concurrence in the aims in music listed in the blank of inquiry.

CHAPTER VIII

PUBLIC SPEAKING

I. DISTRIBUTION OF THE RESPONSES TO THE INQUIRY IN PUBLIC SPEAKING

Responses to the inquiry in public speaking were received from but 7 schools, 4 in Illinois and 1 each in Indiana, Michigan, and Minnesota.

II. THE OFFERING AND ITS ORGANIZATION

It must be pointed out, in the first place, that the work in public speaking is presented in two different manners—as a part of the regular work in English and as a separate subject. In 2 of the 7 schools making responses to our inquiry the former method is exclusively followed, in 4, exclusively the latter, while in the remaining school it is a part of the work in English in the first year only, with separate work appearing in the remaining years.

AS A PART OF THE OFFERING IN ENGLISH

The practice in those schools in which the work in public speaking is a part of the work in English is to set apart regular periods for it. In 1 of the 3 instances of this practice to be found in the data used for this report the teacher devotes one 45-minute period per week to "mainly oral composition" during the first year, to "oral composition and debate" during the second year, to "oral composition, literary interpretation, some debate," during the third year, and to "oral composition, oratory, debate, story-telling," during the fourth year. In the second school two 45-minute periods are set aside for "reading" during first- and third-year English. In the third school, which follows both practices, one 45-minute period is given to "expressive reading, vocabulary, pronunciation, enunciation, voice drill, and oral themes" during the

first year. By this plan the work is of course credited as a part of the work in English.

AS SEPARATE COURSES

In the 5 schools reporting separate courses in public speaking the offering ranges in amount from the equivalent of three-tenths of a year to three and six-tenths full years of work. In the school offering the former amount the work is given exclusively in connection with literary societies in the second, third, and fourth years for a single period per week, and for this work the student receives one-tenth of a unit of credit each year. The nature of the offering in the school reporting three and six-tenths years of work may best be shown by the outline of the course given in Table CXIII. The offerings in the remaining 3 schools reporting this

TABLE CXIII

Course	Year of Appearance	Weeks	Periods per Week	Length of Period
Literary interpretation, speech-making	2	36	3	45
General course in speaking	3, 4	18	5	45
Specialized course in speaking (covering advanced work in impromptu and extempore speaking, debate, and parliamentary law)	3, 4	18	5	45
Literary interpretation	3, 4	18	5	45
Dramatic art	3, 4	18	5	45
Advanced interpretation (public presentation)	3, 4	18	5	45
Oral salesmanship	3, 4	18	5	45

practice are: one school offers a course in "voice culture, elocution, oratory, and dramatic art" in first or second year, with five 48-minute class periods per week; the second school offers 2 courses, one in "voice and declamation" in the second year and the other in "extemporaneous speaking and debate" in the third year, to each of which are allotted two 40-minute periods per week; the third school reports a course in "declamation, extempore work, dramatic art," open to students in any year and being allotted five 45-minute periods each week.

III. METHODS

Correlation of public speaking with other subjects is reported as follows:

English	5 schools
History	2 schools
Civics	1 school
Business	1 school
Art	1 school
Physical training	1 school
Current events	1 school

ACTIVITIES WITH WHICH CLASS WORK IN PUBLIC SPEAKING IS RELATED

The following are, in the order of their numerical representation, the activities with which the teachers relate the class work in public speaking: dramatic club, 5 schools; interscholastic oratorical contests, 5 schools; interscholastic extempore speaking contests, 4 schools; literary societies (or debating clubs), 4 schools; chapel or assembly exercises, 4 schools; special exercises on festival days, 4 schools; intra-school extempore speaking contests, 3 schools; rhetoricals, 3 schools; commencement programs, 3 schools; interscholastic elocution contests, 3 schools; intra-school debates, interscholastic elocution contests, 3 schools; intra-school oratorical contests, 1 school; intra-school elocution contests, 1 school.

A few teachers report the use of other methods for offering the real audience situation, the most interesting of which is quoted here: "We make increasing use of the dozen social centers of the city for presentation of debates, of readings, of plays." The others mainly concern themselves with making an audience of the class.

IV. AIMS

The aims of the work in public speaking vary with the content and extent of differentiation of the courses. The following may be taken to be fairly representative: for voice culture, "a clear, pleasing, and correct speaking and reading voice"; for interpretation, "to develop a deeper appreciation of, and responsiveness to, the best literature" and "to develop the power of adequately expressing literary content to others"; for speech-making, "natural, direct, forceful, well-organized speaking."

CHAPTER IX

SOME GENERAL ADMINISTRATIVE ASPECTS

A perusal of the foregoing chapters on the various subjects appearing in high-school programs of study reveals the fact that certain administrative aspects recur so frequently as to make them essentially constant items of consideration. Among these the more important are what we may call the time factor, the problem of setting up distinctions between elementary and more advanced courses in each of the fields, the function of the textbook in the course, the interrelation of the subjects, and the touch of the work with life. The present chapter will attempt to bring into juxtaposition the facts appearing in the several subjects under each one of these recurring aspects and thus permit these facts to suggest conclusions or standards of practice for all the subjects under consideration. In addition, certain incompletenesses of the investigation for the purpose in hand—the administrative definition of units—and certain inadequacies of practice will be pointed out, both as to the five general aspects just named and as to other administrative aspects more or less special in character which have not been selected for extended treatment in this chapter.

THE TIME FACTOR

What do the facts of practice in the administration of the various high-school subjects point to as a practicable rule or standard in the matter of time element? In the older secondary school, with its restricted range of subjects, all of such a character that they were universally administered by the method of assignment of work for preparation outside the class and of use of the class period almost exclusively for hearing the recitation, the administration of the time element was a comparatively simple problem. The administrator in the modern high school faces a problem very much more complicated. He has this extra-classroom preparation and intra-classroom recitation type of work

to consider, of course, but he has in addition to administer courses in which a part of the time is devoted to recitation for which extra-classroom preparation is required and a part to laboratory work for which no or little such preparation is required; he has some courses in which the work is all or essentially all of the laboratory type; he may have some for which special time for study or preparation under supervision is provided in the daily program; he may have others—at least, this is the practice in several schools—for which both the extra-classroom and intra-classroom types of preparation are required, and still others of a fractional character such that they appear but once or twice or three times a week. By what common denominator is the high-school principal to regulate the total time of these various courses so that he may be fairly certain that a unit in one subject may be the approximate equivalent, for administrative purposes, of a unit in another? The facts of practice as shown in this study indicate such a common denominator: it is the extent of the average student's effort in connection with the subject, as far as this can be measured by his time investment.

It was pointed out on page 27 that the time spent in daily extra-classroom preparation by students of Latin in the first year is modally 40–60 minutes per day and that by the fourth year this increases to a modal practice of 60–90 minutes. If in this connection it is recalled that the usual length of the class period for Latin courses is 40 or 45 minutes (see p. 23), it will be seen that the approximate total time investment per day of most first-year Latin students is 80–105 minutes. For the later years it would be as much more as the time reported for preparation is longer than that for the first year. If we then in addition agree with the current belief that home study is not commonly done as efficiently as that under the observation and direction of the teacher—that is, that there is some loss of time in the former—we are not far from acknowledging that the expenditure of effort on the part of the student is for practical purposes the same in those schools in which the preparation is all of the extra-classroom type as in the schools providing additional 40- or 45-minute periods for classroom study. Although the time spent in study by the students was not investigated for study-subjects other than Latin and Greek, we are prob-

ably justified in assuming that the former require approximately the same time for preparation and that, therefore, the principle we are discovering may be said to apply to all the study-subjects.

In conformity to this principle would be the practice in those 2 schools (see p. 46) that report 65-minute periods in elementary algebra and plane geometry, 30 minutes of which are devoted to supervised study and the remainder to recitation, a part of the necessary preparation being made outside the class period. The practice probably also obtains in some schools reporting 60-minute periods. In this connection it is pertinent to quote a printed rule attached to his report made by a teacher reporting from a school in which this plan is in operation: "Teachers of subjects not requiring laboratory work will devote approximately one-half of the period to recitation and the remainder to supervising the study of the pupils. These supervised periods do not afford pupils sufficient time in which to prepare their advanced lessons, but the time is long enough for pupils to acquire—with what help from the teacher is necessary—a clear understanding of the advanced assignments and methods of solving them, thus making the study at home easier and more profitable."

The longer time needed for the preparation of the assignments in Latin courses of the later years of the high school has been referred to above. This, if carried over to other exclusively study-subjects, is to be interpreted as signifying that, in view of his greater maturity, the student in these years should be required to extend his effort over a longer period than is the student in the earlier years. This will mean that in those relatively very few instances in which in these later years provision is made for supervised study equal in amount to the usual 40- or 45-minute recitation period the work will be of such nature and amount that it will usually require more than the supervised study-period for adequate preparation.

The application of this rule of uniform extent of effort through approximately one and one-half hours per day to courses in science, which are customarily in part laboratory and in part recitation (see pp. 62–67), requires the now generally approved practice of providing double periods for the work when it is exclusively laboratory,

and effort at least equivalent in extent to this on days which are given over to recitation, whether preparation is made outside the class period or in time especially set apart for supervised study, as will be seen (Table XLV, p. 66) to be the case in several schools. A departure from this practice is reported for some of the schools offering general science (see p. 67) which may be justified because the course is manifestly elementary in character and is accompanied by laboratory exercises which are for the most part simple and of short duration. This statement should not be interpreted, however, to signify that in this or in any other course it is justifiable to arrange the work in class and the assignments so that they can be accomplished by the average student in less than the total time per day which we have pointed out that practice seems to recommend as a norm.

In connection with this application of the principle we are enunciating, it may be said that, if the custom of alternation of recitation and laboratory work on successive days of the school week, which gives to the latter two double periods per week, is deserving of being regarded as a standard practice, there are several schools making less than this provision both in the regular sciences (see pp. 64–65) and in agriculture (see pp. 83–84).

The application of the principle to such lines of work as consist wholly or almost wholly of laboratory work, such as manual training (see p. 121), mechanical drawing (p. 122), the household subjects (p. 131), some commercial subjects (p. 144), and art (p. 160), is obvious: (1) the plan of double periods should obtain, or (2) if the class time is 40 or 45 minutes per day the amount of credit should be half that for study-subjects, i.e., those for which extra-classroom preparation is required.

In accordance with what has been said above with reference to the greater extent of effort to be required in the study-subjects of students in the later years as compared with that to be required of students in the earlier years, it does not seem unreasonable to expect of the former in those courses in which class time is devoted wholly or almost wholly to laboratory work during an 80- or 90-minute period per day some additional effort of an extra-classroom type, or, in such courses as consist in part of laboratory and in part

of recitation, usually on different days, to require such additional effort on the days set apart exclusively for laboratory, or by some other adjustment to make up a total investment of time and effort as will be approximately equivalent for all courses planned for students in the advanced years of the high school.

The application of this principle of extent of effort as measured by time investment to the computation of credit for fractional courses appearing, say, once, twice, or three times per week will obviously require the use of the rule of proportion after consideration has first been given to the question whether the subject is of such a nature as to require extra-classroom preparation. For instance, a course in harmony for which extra-classroom preparation is required and to which are allotted two 45-minute periods per week would be the equivalent of two-fifths of a study-subject allotted five 45-minute recitation periods; while a course in chorus singing, for which no extra-classroom preparation is required, and to which is allotted the same amount of time per week as to the course in harmony, would be equivalent to only one-fifth of a study-subject allotted five 45-minute recitation periods.

What has been set up here as a working rule in determining the time element in administering the subjects of the high-school program of study should, of course, not be interpreted to apply uniformly to all students. It has been referred to as the rule for the average student. This will imply the need of adjustment of such a rule to individual abilities; while the slower student will not be able to accomplish the work in this time allotment, the more gifted student can accomplish it in less time.

While the writer believes that the rule as here applied to the time factor in the several kinds of school work is essentially valid, he is willing to concede that it is possible that a study of the facts of practice as to the amount of outside preparation necessary in other high-school study-subjects, such as mathematics, history, etc., may not be exactly the same as that which has been found to be modal for Latin, and, in so far, the principle may need modification. Although the possibility of extensive variation from this modal preparation time in Latin is not very great, it would be worth the effort to find what it is for other subjects and to discover

its bearing on the general application of the principle. In this connection the writer also suggests the further investigation of the facts of practice as to the relation of the time investment of the student to the credit he receives toward graduation for work in such subjects as manual training, music, etc., a relation which has not been given adequate attention in the present study. A related problem is the time investment in and out of class of pupils in elementary grades who receive high-school credit for work in Latin, German, French, or other subjects, and the proper relation of this time investment to the credit granted.

DISTINCTIONS BETWEEN ELEMENTARY AND ADVANCED WORK

No statement of the characteristics of unit courses within a sequence in any subject can be considered complete and adequate until it includes definite recognition of distinctions between work of elementary and of advanced character. Two important considerations call for these distinctions: (1) the capacity that the mastery of elementary work in a subject gives the student for doing work of advanced character in that subject, and (2) the increased capacity because of growing maturity of the student irrespective of his acquaintance with the more elementary aspects of any subjects. Scrutiny of the facts and interpretations presented in the preceding chapters shows that there is some tendency to effect such distinctions, but it also shows in several instances a sad neglect of this vital administrative feature of course-making. It will be worth while to call attention here to such distinctions as appear, as well as to call attention to their absence in some more or less obvious instances.

In the ancient languages (pp. 25–26) and mathematics the distinction, as everyone knows, is one of content. In Latin, for instance, the reading in the second year is Caesar, in the third year, Cicero, and in the fourth year, Virgil; and these are generally acknowledged to represent a constant progression in difficulty from the material for reading appearing in first-year Latin texts. The material for grammar and syntax and for the writing of Latin is correspondingly more difficult for each succeeding course in the sequence. Advanced algebra and solid geometry by their very

names presuppose elementary algebra and plane geometry, respectively. For modern languages, on account of the nature of the investigation in these subjects, we have no facts that indicate such a distinction, although they must exist, at least in some part.

In science the principal distinction seems to be the year or years in which the several courses appear (see p. 59), i.e., general science and physiography seem by practice to be recommended for the first year, the biological sciences for the first or second—more commonly the latter—and chemistry and physics for the third or fourth year, the latter being in practice more distinctly a fourth-year subject than is chemistry. It is probable that the inherent difficulty of the work, including the knowledge of mathematics necessary for the two sciences last named, has brought about the usual practices, although the material presented in chapter iv offers no testimony on this point. Physiography is frequently taught without laboratory work as a component of the course (see p. 64), but no self-respecting administrator would care to acknowledge that this is so because of its elementary character or because of the early place at which it appears. Certainly the presence of laboratory work in a science course should be no clue to its elementary or advanced character, especially since valuable educational tradition demands its presence in all science courses.

Practice recommends certain years in which courses in agriculture appear (see p. 82), and this, as in the other courses in science, is probably in large part due to the relative inherent difficulties encountered by students in their mastery of the subject or to the need of previous work. The place of the course in general agriculture was not investigated.

Since there is no marked tendency in high schools to require that advanced courses in science be preceded by elementary courses, some distinction other than that in use in the foreign languages and mathematics will need to be set up. In the two fields last named, as we have already pointed out, the mastery of the elementary courses gives the enlarged capacity necessary for doing the work of the advanced courses. In science such a distinction will need to be made in terms of the increased capacity of the student due to his increasing maturity, to contact with other subjects

in his course of study, and with little regard to the problem of sequence in the field of science itself. There can be no doubt that the establishment of such distinctions will come with great difficulty.

In history the almost universally appearing distinction between elementary and advanced courses is the chronological sequence of topics, the courses succeeding each other as follows (see p. 94): ancient history, mediaeval and modern history, English history, and American history and civics. Such a distinction could not, however, be considered adequate. A more vital distinction which shows a tendency to emerge is the type of use to which the text is put, the later courses placing less dependence on it (see pp. 99–100), and correspondingly placing more dependence upon collateral readings (pp. 100–101). This distinction could well obtain more markedly than it does, not only in the courses in history proper, but in the related subjects of civics and economics, as does not always appear (see pp. 109 and 115). Further distinctions should be found. Since, just as in science, students may elect the advanced courses in history without having had the elementary courses, so must the distinctions be confined to those recognizing only the increased capacity of the student due to maturity and to contact with other subjects in his courses of study.

The distinctions in manual training, including both shopwork (p. 119) and mechanical drawing (p. 120), as well as those in home economics (p. 128) and household art (p. 129) and to a slight extent in art (p. 161), seem to lean toward forming the courses after the first, either wholly or partially, of certain advanced differentiated subdivisions of the work. In some schools this difference is essentially absent. No such distinction seems to appear in music or public speaking (see chaps. vii–viii). Most of the commercial subjects (p. 143) seem to have found favorite years in which each is taught, owing probably to inherent ease or difficulty of their mastery; and there is no doubt that those subjects appearing in the earliest years, viz., arithmetic, penmanship, and spelling, are desirable prerequisites for some of those appearing more commonly in the later years, such as bookkeeping, shorthand, and typewriting.

One practice of which we have illustrations in a few subjects, and which might have been found to be common to several other subjects had they been investigated for it, merits attention in the present discussion—that of permitting students from several years of the high school to carry work in the same division. First-year Latin may be begun in any year of the high school in 41 of the 105 schools and in any one of the first three years in 32 more (see p. 24). A very large percentage of schools permit students as much as two years apart in the high school to begin a modern language in the same division, and except in a few schools no additional qualitative or quantitative standards of achievement are imposed upon the more mature (see p. 37). In many schools all the sciences excepting chemistry and physics, although listed for some special year or years, are open to students over a wide range of years, frequently all four years of the high school (see p. 59). These practices give evidence of a tendency to neglect distinctions between elementary and advanced courses and, if permitted in several subjects, might make it possible for a student in the later years to take work largely of Freshman or Sophomore caliber, calling for no effort on his part commensurate with his increasing maturity and capacity. Students from the later years admitted in courses that are by the year for which they are listed designated for students in the earlier years should have imposed upon them higher qualitative or quantitative requirements than those imposed upon students regularly enrolled. Furthermore, it would not be unreasonable for a school to rule that no student is to be permitted to elect in his curriculum during his last two years in the high school more than a certain fractional part—one-fourth or one-third—of distinctly elementary courses.

It is evident that distinctions between elementary and advanced courses in some subjects are in need of discovery and definition, and in still others, of reinforcement.

THE FUNCTION OF TEXTBOOKS

The evidence contained in the preceding chapters on the use of textbooks points in general to their domination of courses. This is true of texts in first-year Latin (see p. 25) which constitute the

offering in reading and translation, in grammar and syntax, and in the writing of Latin in almost all the schools. Deviations from the plans of the texts used in all courses in mathematics (see p. 48) do not appear in a very large proportion of cases, and when they do appear they are almost always unimportant omissions, additions, or shifts of order. Essentially the same is shown to be true of courses in science (see p. 67), excepting agriculture, on which we have no information. In courses in history (see p. 99) few teachers report the use of the text in any other way than (1) as the main body of the course with little or no collateral reading or (2) as the basis of assignments to be supplemented by collateral readings. The same statement is true of texts in civics (see p. 109) and in economics (see p. 115). No information is to be had as to the use of texts in manual training, mechanical drawing, home economics, and household art, but we are perhaps not incorrect in saying that, because of the nature and newness of the subjects, not many schools make use of texts in these subjects. Commercial arithmetic (see p. 147) is also shown to be largely dominated by the textbooks used, but on the relation of the text to other commercial subjects the study presents no facts. Art is very patently not so dominated (p. 162). Generally speaking, then, as is the textbook so is the course.

Besides being a finding of considerable significance to the school administrator, urging upon him and those working with him the desirability of exercising great care in the matter of text selection, this fact of textbook domination of courses has its bearing upon the work of framers of syllabi: unless these syllabi find expression in the publication of texts conforming to them, they are not destined to be exceedingly influential.

THE INTERRELATION OF SUBJECTS

There is considerable evidence, direct and indirect, that teachers of most of the subjects investigated for the purposes of this study are granting recognition in their modes of handling their work to the principles of correlation and co-operation—the interrelation of subjects. This evidence appears directly in the facts as to the status of the teaching of Latin in the cases of 10 teachers reporting

"emphasis on English derivatives" (see Table VI, p. 27). It appears for Latin again, although indirectly, in the aims for this subject which we quote here from page 28: "a better understanding of English word-meanings and the grammatical structure of the English language," "a fair knowledge of the history, manners, and customs of the Romans and their influence on Western civilization," and "a fair knowledge of the mythology of the Greeks and the Romans." In a similar way it is reported by teachers of Greek as a special device (Table IX, p. 31) and in the following aims: "a better knowledge of English word-meanings and the grammatical structure of the English language," "a fair knowledge of the history, manners, and customs of the Greeks and their influence on Western civilization," and "a fair knowledge of the mythology of the Greeks"; by teachers of modern language in these aims: "knowledge of the history, manners, customs, and ideals of the country to which the language is native" and "a better knowledge of the grammatical structure of the English language." The only correlation of mathematics investigated is that between the two main divisions of the subject, algebra and geometry, which is seen (p. 51) to be rather general. It is unfortunate that this study failed to make inquiry into the correlation of such an important high-school subject with other subjects of the programs of study. Correlation is implied in one of the main aims in science (see p. 75), "to relate the subject to problems of environment, such as those of agriculture, domestic science, industry," etc., but more extended inquiry might well have been made in this matter for science. There is very positive evidence as to its prevalence in the teaching of history in which this practice was especially investigated (see pp. 103–4); here it will be seen that considerable proportions of teachers correlate history with a wide range of subjects, viz., English composition, English literature, geography, civics, political economy, Latin, current events, sciences, art and architecture, drawing, spelling, and penmanship. It is implied in the close relation of history and civics (see pp. 97 and 108) and of economics and history (p. 115). Correlation in home economics (see p. 134) is reported as being effected with botany, biology, physiology, hygiene, chemistry, physics, general science, geography, history, civics, economics, and English; and in household

art (see p. 137) with chemistry, home management, art, history, literature, English, and physiology. In commercial subjects there is correlation of penmanship (see p. 152) with spelling, bookkeeping, and even with all written school work; and of spelling (see p. 152) with several other subjects, commercial and otherwise. Co-operation of the teaching of courses in art is reported with science, manual training, household art, and history (see p. 162). In public speaking there is correlation with English, history, civics, business, art, physical training, and current events. The only subjects concerning which we have no facts as to correlation or co-operation with other subjects of the high-school programs of study are agriculture, manual training, and music; and there can be no doubt that if the inquiries in these subjects had not been unwittingly so framed as to exclude this sort of data the practice would have been found to obtain in these as well.

Although the résumé of the facts as to correlation are in general encouraging, the fact should not be overlooked that some teachers are still not availing themselves of this excellent detail of educational method, as may be seen by reference to the pages to which the reader's attention has been directed in the preceding paragraph.

THE TOUCH WITH LIFE

If the touch of subject with subject may be held to be important to a functioning education, the touch of a subject at various points with life must be considered vastly more so. This will be shown to be effected in almost as great a variety of ways as there are subjects of study. It is not possible that all the ways in which this contact is effected are represented in this study, nor is it necessary that all the ways appearing in this study be reviewed here in order to indicate that the practice is becoming common. The practice represents a distinct contrast to the older education that seems almost at times to have selected content merely because this was completely isolated from life. Such an extreme principle of selection was probably never characteristic of any educational process, but occasionally seems to have been so to those who are not ready to concede to the principle of the pervasive character of the old-time education, i.e., formal discipline, the universal validity formerly

assigned to it, even though they may be far from ready to cast it aside as a principle void of validity. The new tendencies in education seem to point to at least a partial loss of faith on the part of the schools and perhaps of the public in the universality of the operation of this principle, and a corresponding tendency to make an educational offering that is more or less immediately applicable in life's relations.

This need of the touch with life is in the first place recognized by the mere presence in high-school programs of the study of certain of the subjects with which this monograph deals, viz., agriculture, manual training, home economics and household art, and the commercial subjects. But these subjects are not merely present; they are now generous constituents in many of these programs of study. For instance, the modal offerings of differentiated courses in agriculture in the schools reporting are three and four years (see p. 82); in shopwork, 2, 3, and 4 year-courses (p. 118); in mechanical drawing (p. 118), 1 to 4 year-courses; in the household subjects (p. 127), two and four years; and in commercial work (p. 142), 7 or 8 subjects.

Other aspects of these newer subjects than their mere presence or their generous extent indicate that they find contact areas with life. In agriculture this is shown by the large number of field trips (p. 87) and by the range of practical exercises (p. 86), as well as by the large proportion of schools recognizing the vocational aim (p. 89). In shopwork it is seen in the absence of models as the sole type of activity, and the appearance of other types, such as practical individual projects, manufacture of commercial products in quantity, and the making of community projects (p. 122). In line with this tendency is the practice in some schools of granting credit for home work in the household subjects (pp. 134 and 137), the practice beginning to appear of requiring the preparation of family portions (p. 133) in courses in home economics, and the fact that few schools report work on models as the sole type of activity (p. 136) in courses in household art. In commercial subjects it is recognized by the aims concurred in by the teachers (p. 154), the efforts to give students actual business experience (p. 151), the introduction of "practical" or "real" problems into the courses in

commercial arithmetic (p. 152), and the emphasis upon local conditions in commercial geography (p. 154).

But this practice of bringing school work in touch with life concerns also the other subjects of the programs of study. Some would see in some schools in the practice of teaching the modern languages by the direct method (p. 39) a desire to equip the student with a utilizable speaking knowledge of these languages. Most certainly would the differentiation of the work in these languages along commercial, scientific, and industrial lines to meet future vocational needs of students (p. 41) be a case in point. Here would be found also those efforts in the teaching of mathematics (p. 53) which are addressed to the introduction of "problems of daily life," "more concrete work," "more practical problems," "vocational problems," etc., in order to meet current criticisms of the teaching of the subject and the stressing of the practical aspects as a frequently recognized aim of the teaching of mathematics (p. 53). This contact is effected in science by the almost universal use of practical illustrations at some point or other in the development of a principle (p. 71), in the rather general recourse to field or "observation" trips (p. 72), and the very frequently recognized aim (p. 75), "to relate the subject to problems of environment, such as agriculture, domestic science, industry," etc. It may be seen in history in the introduction of periodicals into the collateral readings (p. 101), in the correlation effected with current events (p. 103), and in the aim that recognizes the need of training for good citizenship (p. 105). It is most emphatically present in courses in civics in the important constituent of community civics (p. 109), in the types of materials students are required to use (p. 110), in the extent to which certain of the special methods and devices are being used (p. 111), and in the co-operation with local civic, commercial, and other bodies and interests (p. 112) making its appearance in some schools. In economics it may be found in the tendency to give attention to programs of economic reform (p. 115) and in the emphasis on local economic problems and conditions (p. 115). In the work in art this contact with life is brought about in a few schools by co-operation in civic and community problems (p. 162) and in the concrete results expected and influences noted (p. 163),

while in public speaking it is to be seen in the efforts to furnish the student the "real audience situation" (p. 172).

It needs to be noted, however, that not all teachers are reporting the types of activity that bring the student into wholesome contact with life's problems. Recourse to the page references given in the preceding paragraphs will furnish evidence of the truth of this qualification. In some schools teachers do not introduce "practical" problems into the work in mathematics nor field trips into the courses in science and agriculture. In some schools there is no correlation of history with current events. In most classes in civics there is no co-operation with local civic, commercial, and other bodies and interests. In a few schools students in courses in household art are still occupied exclusively with the making of models, while most teachers of commercial subjects offer no actual business experience to the students in their classes. Other illustrations of such a failure might be cited, but our aim is merely to show that the tendency to bring the student into touch with life is not by any means universal.

CERTAIN ADDITIONAL POINTS OF INCOMPLETENESS OF THE INVESTIGATION UPON WHICH THIS STUDY IS BASED

In the current chapter frequent reference has been made to more or less important administrative aspects of high-school subjects which the investigation upon which this study is based has failed to touch. There must, of course, be many more. Some of these additional inadequacies will here be designated.

The investigation has neglected to inquire into the extent of offering in mathematics and science other than agriculture in each school reporting (see chaps. iii and iv).

Some important questions of method that are deserving of investigation are the following:

In Latin and Greek:

- The actual extent of stress upon English derivatives (p. 27).
- The value of the "direct" as compared with the "grammar-translation" method.
- The justification for granting credit for a single year of Latin (p. 24) or of modern language (p. 36).

In mathematics:

The actual extent in each school of the use of historical notes (p. 51).

The actual extent in each school of the use of correlation between algebra and geometry (p. 51).

In science:

The value of differentiation for boys and girls in recitation or laboratory or both (pp. 74–75).

In music:

The methods employed (chap. vii).

In all subjects excepting mathematics, manual training and mechanical drawing, and home economics and household art:

Disposition of the class period to various kinds of activities.

The larger aspects of content of the several high-school subjects —not detailed syllabi—are matters of administrative importance. These have been investigated only for Latin (p. 25), Greek (p. 30), general science (p. 70), general agriculture (p. 85), home economics and household art (pp. 128 and 129), manual training and mechanical drawing (pp. 119 and 120), and a few of the commercial subjects (pp. 146 ff.).

It has already been indicated in chapter i (p. 19) and elsewhere that the numbers of responses to the inquiries in Greek, Spanish, solid geometry, trigonometry, physiology, and public speaking were small. In the cases of some of these at least the number of responses does not warrant drawing far-reaching conclusions from the facts appearing. Furthermore, no investigation was made of the normal-training subjects[1] or of physical training.

[1] Since writing this monograph the author has investigated the teacher-training departments of nineteen North Central high schools and summarized the findings in an article under the title "Teacher-training Departments in North Central High Schools," *School Review*, XXV (April, 1917), 249–56.

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